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University Chronicle

VOL. VI APRIL, 1903 No. 1

THE UNIVERSITY'S DUTY TO THE STATE.*

GEORGE C. PARDEE.

I hope the time will never come when the University of California can say that the present Governor of this State has ever been false to his Alma Mater; and I hope the time will never come when the finger of scorn can be pointed at him, or scorn and contumely heaped upon the name of a representative of this University or one of its graduates.

I believe that there is work to do, work of the greatest importance to this State, and work of the greatest importance to the community, by you, young people, who sit here on the floor of Harmon Gymnasium to-day, and who, in a shorter or longer period, will go out into life and become integers in the community of this State and of this world. If you are false to this, if you are false to your University, then you are false to the State. You are ingrates in the deepest sense of the word, and have done an injury to the institution which you will then have disgraced.

We assemble here yearly to celebrate with becoming and befitting ceremonies the anniversary of the birth of this institution which we all love so well. There is something, as President Jordan has said, in the very atmosphere of a university. There is something in the slope of the Contra Costa hills that stand behind us, down to the marvelous

*Stenographic report of an address delivered by Governor George C. Pardee at the Charter Day exercises, March 23, 1903.

sweep of the Bay of San Francisco and the Golden Gate, that leads out to the Orient. There is something that holds us all in the magic of its spell and brings us back, either in body or in mind, at the annual recurrences of these celebrations; and whether we be in Darkest Africa, doing the work which they cannot find other men to do elsewhere than in the State of California or from the University of California, or whether we are close at hand at Berkeley or San Francisco,—at the annual recurrence of these days, our hearts turn back, and we are here either in spirit or in body whenever our Alma Mater calls.

But I am afraid, and I have become much afraid during the past three months, that our alumni, the people who ought to know better, do not appreciate the debt of gratitude they owe to the people of this State. The people have done everything for this University. They have founded it; they have nourished it; they have supported it; they have given it their confidence and their money, and they have made possible here in Berkeley an institution hardly with a peer on the face of the earth; and yet I am afraid that those of us who have gone forth from this institution for many years do not appreciate the debt of gratitude they owe to the people of the State of California. For every dollar of the money that has been spent at this institution here in Berkeley has been drawn from the people; not unwillingly, but gladly given from the sweat of their brows and the work of their hands and minds. And yet, as I said before, I am afraid that those who have gone forth do not appreciate the debt that they owe to the people of the State of California.

I have asked men who ought to know, men whose professions of faith are great in the State of California, to serve the people of the State, and they have refused, forsooth, some of them courteously, others gruffly, and others in a way for which the university spirit in them should be ashamed—they have refused to serve the people to whom they are indebted for all they have of intellectual worth.

Now perhaps it does not come with good grace for an alumnus of the University of California to stand here and preach and sermonize in this strain; and yet the lesson has come home to me so hard and so frequently during the past three months that I cannot avoid, even at risk of offense, to sermonize thus with this as a text on this occasion.

I hope as a loyal son of this University and as a citizen of this State that the alumni of the University of California will do their every duty to the State, will uphold the hands of government, and will see to it that everything that is possible to be done by them will be done, that the good name of the State of California and the good name of democracy may not suffer at the hands of this State.

We owe a deep debt of gratitude to those people who, forty years ago, surrendered what had become to them almost a part of their being, and gave up the old College of California, of dear and tender memories, and made it the foundation upon which the University of California now rests so securely. When we celebrate Charter Day let us not forget that before there was a Charter Day there were men and women who worshipped at the shrine of education and laid broad and deep the foundations of the old College of California, which was turned into and became a part of the University of California. And from that one event, during the life of him who stands here now before you, the University of California has grown from a small educational shrub to the gigantic tree which it now is.

Remember that within the last twenty-five years the University of California has become world-renowned, and that the faculty and students and alumni now number thousands where they then numbered hundreds.

Therefore I say to you again, young people, do not forget the debt you owe to yourselves, the debt that you owe to our Alma Mater, and the debt you owe to the people of this State; and when the opportunity is offered you to do the service of this State be men and women and refuse it not.

AMERICAN UNIVERSITY TENDENCIES.*

DAVID STARR JORDAN.

Gentlemen of the Faculty, the Board of Regents, members of the University of California, ladies and gentlemen: It is a very great pleasure to me, as a non-resident member of your faculty, to be called up from Sparta to Athens, this morning, to take part with you in this great celebration.

The university is the greatest specific achievement of the Republic, or any branch of the Republic, and as we have faith in our State University, and as we have faith in ourselves, it is proper that I should come before you to speak in praise of universities.

The business of a university is to train men how to know, how to think, and how to do. To be, will take care of itself. If they know the truth, if they can think straight in regard to it, if they can do things and bring about results, we may be sure that what they are is something worth the while. It is not necessary for a university to train men to be anything in particular, because that will come from the other.

Wisdom, as I have had occasion to say once or twice, is knowing what one ought to do *next*. Not simply knowing in the abstract, not simply knowing what may be done some time, but knowing what one ought to do *next*. There is always something to do now and here, at this time, and that has to be done immediately, on the spot. This the

* Stenographic report of an address delivered by David Starr Jordan, President of Stanford University, at the Charter Day exercises, March 23, 1903.

wise man recognizes. So wisdom is knowing what one ought to do next. Skill is knowing how to do it, because one might know what to do, and yet be ignorant of how to put his knowledge into action. Virtue is actually doing it. There is nothing in virtue that is not dynamic. Passive virtue deserves some other name. Wisdom then is knowing what to do next. Skill is knowing how to do it. Virtue is doing it. Religion is the reason *why* it should be done. The religion of to-day is more and more the working theory of life and action. Those forms of religion which do not lead to life and action no longer have a place among the dynamic forces of existence.

The university does not make anybody. It does not create something out of nothing. It can only take the material it has and make the best of it.

The most precious possession of any community is in the talent of its citizens. This talent exists in possibilities, not actualities. Emerson tells us "that at birth the gate of gifts is closed." We do not again get anything for nothing. The rest we must make for ourselves, We do not have any of these gifts. Nothing in life is ready-made. We have only the possibility of developing them, and without use, that which we seem to have may be taken from us. The gifts of heredity have been compared to the fragments in a mosaic. They are unrelated fragments drawn from many different sources, used for varied purposes by a hundred different ancestors. The art of life is to bring these into form, to change them from a jumble into a picture.

The university finds here its largest mission. It takes these young men and women with their mosaics of possibilities partly developed or wholly undeveloped and helps to throw them into form as harmonious pictures.

The university takes hold then of possible talent and makes out of it actual achievement. It has been said that a part of the work of a university is "to lead us to our inheritance;" to give us access to the experiences of men in

the past; to help us to find out what has been done when men have tried experiments before. Out of the experience of men libraries are made. The universities bring all these together and give the key by which we may use this experience for ourselves.

The university teaches men to use these libraries. With a hold on the experiences of the past, we do not need to try over and over again every sort of political or social experiment which other men have tried and which again and again has failed. To bring us to our inheritance is to give us a knowledge of what men have done in the past. There is another inheritance even more valuable than that, to which the university may lead us. This is the inheritance of the methods by which men have been able to tell that which is true from that which is false, the methods by which men have been able to test the reality of external things and to separate the actual from that which is imagined or remembered.

Another duty of the university is to furnish instruments of social need, men that will do the work that the times may demand of men or nations. It has been long recognized that the monarchy needs the university. It needs men ready for its service, else it can not be successful in its work. It is reported that the Emperor of Germany once said that "Bismarck and Von Moltke were but tools in the hands of my august grandfather." The august emperors of all nations have recognized that they must have edged tools for important work. They must have broad-minded, keen-sighted men to guide the administration in all it has to do.

The church has recognized that it, too, needed university men—educated men, dialecticians who would argue in various tongues for their various purposes, spiritual leaders for the uplifting of men and great pursuaders to reach men's hearts. In this need the great historic churches have founded and maintained universities in recognition of their need of the help of this scholarship which may be defined in terms of power.

In the same way the leisure class through the ages has asked for the polish of universities. It has demanded its badges of distinction, if for nothing else than to show that its young men had done the proper thing—its certificate that they were well dressed. To the universities the leisure class has looked for the consciousness of righteous training and for that experience of comradeship which in good time will make of almost any young man something resembling a gentleman.

More than all the others, the people have needed universities. They have needed men who could do the things that must be done for the whole community in common. Emerson said that "America means opportunity." America means democracy, Democracy does not mean equality, certainly not equality of finish. Its final effect is just the reverse of equality. Democracy means equality before the law, equality of start, equality of opportunity, the right of each one in his own way to make the most of himself. I have once or twice insisted that the great discovery of the twentieth century was going to be one in social geometry, "that a straight line is the shortest distance between two points."

When the community has anything to do the best way is to find the man who can do it. It must find the man who has skill, wisdom and virtue to accomplish the result that is aimed at. It is necessary in order that a straight line may be the shortest distance between two points in our social affairs that when we have anything to do in America we may have men who are trained and willing to take hold and do these things regardless of all external circumstances, regardless of any question of praise or profit or revenue. We want men who are not afraid of any duty large or small, men who will carry "messages to Garcia" or to any one else in any part of the world. In order that there may be such men in every community, universities have been established for the welfare of the people, by the people and for the people.

The democracy needs universities and in the same way the university needs democracy. A university is never quite strong unless it can have from time to time what Lincoln said all public men needed, that is "a bath of the people." Men and institutions need to come in contact with the great pulse of the community. A bath of the people the university sometimes needs, to hold it up to its best duty, and its best duty leads always in the direction of the strengthening and enrichment of the common people.

A bath of the people helps the university to distinguish between pedantry and wisdom, between fruitless knowledge which leads nowhere, accumulated not for any purpose of action, and the knowledge that is vital to the labors of life. Unless it is brought in close relation to democracy, the university may forget that the ultimate end of all science is found in its relation to conduct.

It was said a while ago at Oxford that "our men are not scholars and our scholars are not men." The men in that sense at Oxford are the oarsmen, the great, good-natured, energetic, full-blooded youth of England, interested in life and action, but not in scholarship as interpreted by the scholars. The scholars are not men because they have false standards of pedantry and have no interest in the actual affairs of living men. Whether all this be true of Oxford, it is sometimes true of our universities, Too often we have cultivated false standards of scholarship, leading men on to learning things for learning's sake, lessons that have no truth save what men have agreed to give them. It is said that many a college professor could not earn his living if he were forced to deal with realities. This ought not to be so, for the best teachers are those of richest and strongest lives, those who can "talk men over" because they "can act men over", the foundation according to Carlyle of all true eloquence.

It should not be true of a university that "its men are not scholars;" that the men who do things can not do them accurately or skillfully or wisely; that its scholars are not

men, that is that they are not capable of accomplishing results. The tendency in American universities, it seems to me, is to bring scholarship and manhood together. More and more all classes of wise men are being rated as scholars. More and more knowledge is made effective in the affairs of life.

The American college is a lineal descendant of the English colleges, inheriting the same traditions, existing for the same purpose. In every way feebler they were in the beginning, because they had less money and fewer incentives. They were democratic in one sense, that they were established at the cost of the people. The "little brick college at Cambridge" was given Indian corn and wheat and cattle and lumber and yarn by the people who were interested in maintaining at Harvard the education of clergymen and statesmen. They trained young men in their simple, primitive, traditional fashion for the learned professions and for public life. They were undemocratic because their purpose was to raise men above the class in which they were born or placed. It was their pride that the degree of the college formed a sort of badge by which they might be distinguished from the common mass. In our day it is the purpose of higher education not to separate its men from the mass, but to strengthen the mass by bringing from the multitude the man. The early colleges were celibate institutions. The education of men did not include that of women. We have found in our day that better results are achieved when the greatest variety of educational interests are brought together. Men and women help each other in manners, in thought, in character.

Emerson says it is part of the duty of the college "to bring every ray of varied genius to its hospitable halls, that by their combined influence they may strike the heart of youth in flame." Every ray of varied genius finds its usefulness among professors and students alike. The mind of each student is strengthened and inspired through per-

sonal contact with other students equally serious in other lines of work.

These earlier colleges did not care to develop varied genius in varied lines, but they tried resolutely to cast all forms of genius in the same mould. "Greek-minded," "Roman-minded," or minded to be inventors or engineers, all were treated alike, the same training, the same access to the same truths. This was good training for a great many of them, but very inadequate training for a vastly greater number. As time went on the others staid away and science grew up in America uncared for by her colleges. The colleges recognized the value of Greek, of all languages the most beautiful, and of all literatures the most perfect. Those who came near enough to the classics to recognize this, have gained something they would never willingly forego. But the value of scientific training, of contact with truth which is true in the nature of things, this the early college never understood. The further progress of the American university is the progress of the methods of science.

It was an epoch in the history of the university when over thirty years ago, Herbert Spencer put forth his little essay, "What Knowledge is of Most Worth?" The schoolmen of England were appalled. To most of them it had never occurred that any knowledge was worth anything. Knowledge was simply a badge of aristocracy. It was valued chiefly for its help in social relations. "What knowledge is of most worth" implies that knowledge has some value and that some knowledge is better than others. Spencer told them that the most useful knowledge was worth most. First, the knowledge of one's self, how to keep his own; second, that which is needful for professional success, health and his moral and physical strength; third, that which enables him to be a good husband and father, to understand how to rear his children and how to keep them from dropping into untimely graves; fourth, that which makes him a good citizen; such a knowledge and experience

in political and social affairs of the past as will enable him to avoid futile experiments and to stand up and be counted on the right side when the question is brought up between right and wrong, between wisdom and folly; and finally, the aesthetic culture that will enrich life after scientific training has made it effective.

In this discussion Herbert Spencer fails to recognize that fact that there are many varieties of men. It is not true that all the various kinds of talent and genius should be turned in the same way upon the same subject. Men should grow more and more apart as they go on developing. The university should be one of the greatest means of separating them. Besides this we must recognize the value of the teacher. It is more important to know well some real scholar than it is to study any number of desirable subjects. Without taking a present example, as I might well do, from those on the platform, I may refer to Joseph LeConte and his influence on young men. It was well for every student to know him, no matter what his profession might be, no matter what his future walk in life. Everyone is better in a degree who has learned to understand this gentle, gracious and generous life.

Garfield once said that a log with Mark Hopkins on one end of it and himself on the other would be a university. Such a log would not give the very best of professional training. Mark Hopkins was satisfied with very few books and very few subjects of instruction, but he could always give something better even than books, the influence of a beautiful, strong and clean personality. In every college in all times the student has found some man who in some degree could be to him what Mark Hopkins was to Garfield. To know such men is the essence of higher education.

Our times tend to breed democracy; we are forced to treat every man as equal before the law. It could not be otherwise with all the things that in our times we have to do. We cannot bother with "Lord" this and "Earl" that, the

eldest son of the eldest son of the eldest son of someone who has lain on velvet all his lazy life. We care not what was done in the past. We have our own tasks for to-day. Thus democracy is the resultant of the strenuous life, with the complexity which the energy of our race has forced into all operations in these later times.

Now just as we have come to recognize the equality of all men before the law, so we have come to recognize the right of each kind of mind to have a fair chance in the university. We do not hold that one sort of mind is just as good as another. That is not true. All men are not equally good or strong or helpful. But to each we owe a fair chance, and an opportunity to make the most of such genius as he has.

Ezra Cornell at Cornell University "would found an institution where any man could find instruction in any study." He would place the democracy of mind on the same basis as the democracy of man. He would make it possible for one man to study engineering or another to study Greek and the two would be on a common level of common opportunity. I went to Cornell University myself as a pioneer student in the pioneer class, because in Cornell I might study botany and geology, and yet receive a degree just as if I studied Latin and philosophy. To the new studies this new institution granted the same rank as to the components of the time-honored English Tripos, the three-legged school of culture.

Richard Rumbold, whom they slew in the time of King James II. because he was a democrat, once said "he never could believe that God had created a few thousands of men already booted and spurred, with millions of other men already saddled and bridled for these few to ride." This was an expression of democracy, of equality before the law. Andrew Dickson White was a Rumbold in the field of education. He could never believe that a few men were born with faculties to be trained, and that the powers of the great body of men were to be left to develop without training.

Professor Agassiz used to insist that "Harvard was a very respectable high school where they taught the dregs of education." He used to insist that a thorough knowledge of something, of anything, constituted the back-bone of education, that a thorough training in any line gave a base-line by which the work of others could be measured.

The man who knows some one thing thoroughly has a much sounder idea of affairs and of the work of men than the man with a variety of unverified knowledge. The period of prescribed courses of study gave way in time to the patchwork courses of unrelated fragments. A little science, a little of modern thought, the old A.B. giving way to the new B.S.—Bachelor of Surfaces. This degree was always considered as inferior, as it must be, because it lacked that continuity of effort which gave the classical course its greatest value.

It was recognized by Agassiz that the educational value of advanced study in any special line is greater than of elementary study in some other line. The student gets more strength each year from continuous work on some particular subject than from studying again and again the beginnings of something else. There may be some modification or exceptions, but as a broad rule in education the value of special study in a few lines is always greater than the value of elementary study in many lines. Specialization ought to begin early, but it should be made as broad as it is high. The sooner a man realizes what he is going to be, the better, and then the longer time he takes for preparation, the better will be the final result. Our universities are too tolerant of shabby work. Our prescribed courses permit it. They encourage it. Prescribed work may be necessary, but it should lie in the nature of things, not in the whim or compromise of some educational committee. The university should retain no man not making serious use of its advantages. Men who are in college for purposes other than for mental training have no business there. These should be taken to the edge of the

campus and then dropped off. If this were done we should have little trouble with rowdyism and dissipation in our scheme of discipline.

Good students make good teachers; a good teacher reacts to make good students. It is time that courses of study were made individual. Tailor-made courses should take the place of those tradition has handed down.

The main purpose of the English universities has been, in a broad way, the development of personal culture. The man who has gone to Oxford has basked in the sunshine of comradery, and this is good for his manners and for his relations with men. Personal culture has its importance, and the English universities have made men of culture. In France the university has prepared men for ready-made careers, through its relations to the civil service. The German university has an ideal of thoroughness. The German is not satisfied until he has found out the *Versprung*, drunk at the *Urquellen* in whatever he is studying. The German university graduate is not always a man of culture. I have seen some of them with the manners of a grizzly bear, but they were scholars nevertheless. The English university man, whether scholar or not, has the bearing of a gentleman. The German's idea is that a man should know the whole matter thoroughly. The ideal of the American university is developing along lines not necessarily higher than either of these, but more befitting the times. The ideal of the American university is becoming more and more that of effectiveness. We would send out men who can do things, men adequate to whatever they undertake, fitted for the most strenuous need of the most strenuous work. We send out men who can take the humblest places when there is nothing better on hand, but are always ready for the highest trust at the call of great necessities. They will do little things till the great ones appear. Our American graduates are not always men of culture. They are not always men of thoroughness according to the German standard. You cannot make all men

over according to the same ideal. But take them as a whole, the scholars of America can accomplish results that are not reached by the more thoroughly trained men of Germany. They know how to adapt men and things, and how to do things. In this element of making things go and doing it at once the American student takes the lead. With the growth of action we shall value more thoroughness and culture, the culture on which sound action must depend.

There are still many things that our universities need to do. We need to take better care of our students. We have a great many more students than we can care for. We should serve the community better if we dropped half of them and gave the others individual and personal care. The very best thing a college can give is the personal friendship between teacher and pupil. The element of personality stands above that of mere instruction. It was my good fortune in my college education to have known three great men—Louis Agassiz, James Russell Lowell, Andrew Dickson White. The books I studied I might well forget, but I shall not forget the personal stimulus of these great men. There are many more such in our universities. Harvard has no longer a monopoly.

We do not pay enough to our teachers. I discovered the other day that our bricklayers at the University were earning more on an average than the professors. The college instructor has spent four years in college, with another three in Germany, while the bricklayer has only his three years of apprenticeship by way of preparation. It costs more to make a professor than a bricklayer, and we must pay accordingly, or else we shall fill our halls with men of a lower grade than the students they teach. Perhaps our scholars will choose to practice bricklaying rather than teaching, applying their leisure after the eight hours' work to Socrates and Browning.

The Japanese essayist, Uchimura, writing of the schools of old Japan, says that "we did not call our teachers by the

unapproachable name of professor. We called them Len Lei, those born before, our elder brothers." He further says: "They knew each of us by name." This touches the most important need of our larger institutions. We should know them all by name. Each student should be known by name to somebody, and not merely by name, but by character. There then should be some one in the faculty who will vouch for every individual—some one who knows what he is and what can be made out of him. When we reach this condition we shall have better trained men. To know each by name is the advantage of a small college. But the larger college commands the better teachers, and the problem of the large college is to grow without growing away from the influence of personal contact.

Most vital to the university is the development of the university atmosphere. This can hardly be done in the great cities, for the coming and going of the *Spurstudenten* or railway-track student has in it nothing of academic suggestion. It is from the great cities that we have the suggestion as to the shortening of college courses, that students may hasten into the professional schools. This demand could hardly arise from institutions having a university atmosphere. As Dr. Woodrow Wilson has observed, "No one who ever saw a sophomore would wish to graduate him in that condition." The last two years are the best of the college life. They represent the culmination of the college atmosphere. In these years the student helps to form this atmosphere. It is true that the old college course closed where the junior year now begins. This gives the opportunity to enrich this course, to give it strength and meaning. In these last two years we can give not only general training, but the elements of the method of research. We can give independent work, and the elements of professional study. We can build up manhood and scholarship at once and on sure foundation.

Frederic Denison Maurice says: "All experience is against the notion that the means to produce a supply of

good ordinary men is to attempt nothing higher. I know that nine-tenths of those the university sends out must be hewers of wood and drawers of water, but if I train ten tenths to be so, then the wood will be badly cut and the water will be spilled. Aim at something noble; make your education such that a great man will be formed by it, and there will be a manhood in your little men of which you do not dream."

FOUNDERS OF THE UNIVERSITY.*

SAMUEL H. WILLEY.

I was asked to respond to the toast, The Founders of the University, and "remind you how firmly the University is rooted in the early days of our Government's occupation of California." I will narrate the facts as they occurred, and you, Gentlemen, can judge whether the roots of the University have any appreciable connection with them.

The beginning of those "early days" is remembered as the period of the inrush of the miners, a great concourse of young men, eager to get gold, and as soon as possible return home. They crowded San Francisco and were busy at the mines.

At the same there were a few hundred farmers who had made their way across the plains with their families from the older states of the middle West, and were settled in the valleys in the middle and northern part of the territory. They had been here but two or three years.

The other portion of the inhabitants consisted of the Spanish-speaking rancheros, occupying the southern portion of the territory. All in all it was not a promising beginning for a new state.

But there were a few in the crowds of young men arriving, who came intending, if all things favored, to remain. Some of them were graduates from colleges and professional

* Address at the University of California Dinner at the University Club, San Francisco, January 23, 1903.

schools, just entering upon their life-work. They became known to each other in various ways, and soon were in correspondence touching upon what things could be commenced looking toward a new state. There was nothing here to begin with, no roads, only bridle-paths; no bridges, no public buildings; everything had to be commenced from the bottom. This correspondence was quite free in the early part of the year 1849, for we could not meet—the spaces were too great, and traveling on horseback took too much time, and was exeessively fatiguing.

One of the first things brought up for consideration between us was the matter of education. At that time there was not even a school in all the territory. It was quite easy to imagine that common schools would spring up as they came to be needed, but how about the college? We were three thousand miles in distance, and a month in time, away from our eastern colleges, separated from the rest of the world by a stone wall on the east, and by an unfrequented ocean on the west. It was clear that the state, if there should come to be one, must build its own college and educate its own children for teachers and for professional life, or else depend on an uncertain foreign supply, and so fail in self-reliance and in a just self-respect.

So the correspondence was extended to some of the best known edueators in the home-land, for suggestions and advice; and the replies they sent back were full of encouragement and practical ideas derived from experience. The need of a college here seemed, at that time, quite far in the future, but it was thought, if proper measures were taken early, that the beginning of a property foundation might be laid in the acquisition of land from some men who owned it in large quantities, and who might be willing to donate portions of it for the promotion of the higher education in the time to come.

In all this correspondence which was had in the early part of 1849, two things were distinctly understood as to any college we would work for. First: that it should be

one in which we would all unite, and consider a college education common ground, of use to all denominations alike. It was clear that if we could have even the beginning of a college in our lifetime, it must be one in which we should all join. Second: that it should be a genuine *college*, with a curriculum and a standard of examination equal to that of the best eastern colleges.

Later in the year 1849, the Constitutional Convention assembled in Monterey, and on that occasion some of us met for the first time, and after our summer's correspondence made each other's acquaintance. In the convention there were forty-eight members. A majority of them were between thirty and forty years of age. Eleven were farmers, fourteen were lawyers and the rest were miners and merchants.

When they came to the framing of an article making provision for education, they were of one mind that it should be liberal. One section of public land was not enough, and so they set apart two, and threw in some income from fines, etc., till one farmer from the old West raised the question whether they were not setting apart more money than the schools could ever use! But the majority was ready to take that risk, and the article was quickly adopted.

Something was said about a university or college, and a little was done toward beginning a "Seminary Fund" for use in the future. But state universities had not come into general favor at that time, and liberal education depended on colleges founded and endowed by private funds.

It was more than twelve years before the Morrill Act, giving public land to the states for scientific, industrial and educational purposes, was enacted by Congress. In those days therefore, if the people of a new state wanted a college, they had to found and build it by private enterprise. Accepting this as the method to be pursued here, we began to plan for getting the means.

Some gentlemen in the convention and others near it

were owners of a great deal of land, and were quite willing to give valuable portions of it toward the foundation of a college. Some of them put a promise to that effect in writing, and it seemed likely that more would do so. But nothing could be done definitely in the matter till the State was organized, and until a Legislature could give a board of trustees power to hold property.

So it was agreed that as many of us as could, should meet at San José at the time of the session of the first legislature, in the ensuing January, 1850. We did so, together with some additional numbers, and our plans took more definite shape. A good law for the incorporation of colleges was enacted by the legislature, and opened the way for another step in our procedure.

But here we met disappointment. All land at that time, of any value, was held under Mexican grants. Many of these were disputed, and none of them was surveyed, and it was soon seen that all these titles would have to be passed upon by a United States land commission before tracts, such as we had in view, could be conveyed to us, with any certainty that the titles would never be disturbed.

The necessity of this examination of land-titles removed into the far-away future the possibility of our realizing anything from the proposed donations and even prevented our being able at that time to secure incorporation.

But in the study and work with a college in view, even thus far, we had become enthusiastically interested. What time we had given to it was snatched from numberless engagements of a more immediate pressing importance, but the matter was never put aside or allowed to rest. The group of college men associated in these movements up to the year 1853, was from eastern colleges as follows: four were from Yale, one was from Dartmouth, one from the University of Vermont, one from Western Reserve, one from Hamilton, one from Knox and one from Wabash.

In sympathy with them in what they proposed to do, were a good many other college graduates, business men,

who always gave us what assistance they could. In 1853 there were seven added to our group by new arrivals as follows: three from Yale, three from Union and one from Bowdoin.

By this time a good many families had come to California, and a school was opened for boys in Oakland, in which those intending to go to college could prepare for admission. For its accommodation funds were solicited from business men, and four blocks of land were purchased, located between Twelfth and Fourteenth, and between Franklin and Harrison streets. The tract was well fenced, and a house suited to the wants of the school was built upon it. The school soon supported itself by its tuition-income, and when it outgrew its first quarters, additional buildings were provided. It continued to grow, and in a year or two became quite a literary center, well known for its examinations and anniversary exercises. In due time a class of boys began to prepare for college, and in view of that fact, a college charter was sought and obtained in the year 1855.

While the class were making ready for college, two years were spent, at odd times, in the search for the best site for the permanent location of the institution. In 1858 the present location of the University of California was chosen, and then all plans for the future began to center there.

Aware now that it would be but two years before the first class would be ready for admission to college, the beginning of a Faculty was appointed, and additional buildings were prepared to accommodate the new work. We knew that the greater expenses would come on gradually, and our experience with the public had encouraged us to believe that we should be helped to meet them.

But with unexpected swiftness the years went round and brought us to the time of organizing the college, and admitting the first class. Without endowment as we were, it was with no little trepidation that we moved forward to assume the responsibility of a work so far-reaching and

so costly. But a great opportunity seemed to beckon us forward. Early in the year the trustees of the college held a special meeting on the chosen "College Grounds," for the purpose of formally setting them apart and dedicating them to the uses of education.*

In June the school term closed, and the class preparing to enter college was given a thorough examination, which was satisfactory. They were admitted. This was a step in advance of any that had been taken hitherto by any school in the state, and it placed the institution on new and untried ground, from which, however, there was no disposition to retreat.

Classes were afterward admitted each year till there

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* This meeting of the Trustees of the College of California deserves a record. After several years of examination of possible sites for the permanent location of the college, and having chosen this one, they held a special meeting on the grounds to take formal possession of it.

It was on April 16, 1860. It was a clear, a beautiful spring day. For hours we wandered about the grounds, studying their adaptation to the uses of an institution of learning. Though they were but a part of one continuous grainfield extending from Oakland to San Pablo and beyond—and not a single dwelling was in sight—the space enclosed by the two ravines, meeting where the grand old oaks stand, seemed almost designed for the uses of buildings and all the purposes of an institution of learning. We greatly enjoyed the wonderful landscape views to the west, and the dignity and stability of the friendly hills on the east.

When ready to fulfill the purpose of our coming, we looked about for some permanent land-mark in this field of ripening grain, around which we could gather, that would remain a memorial of the occasion.

The outcropping ledge, since known as Founders' Rock, was the only thing that met the requirement. From this elevated spot the entire grounds were in full view. There were no eucalyptus trees then. There the board met and organized, and passed the resolution setting apart these grounds as the location of the College, and as a seat of learning forever.

After a few brief speeches full of enthusiastic hopefulness for the future, the President of the Board standing upon the rock, surrounded by the other Trustees with heads uncovered, offered prayer to God, asking His blessing on what we had done, and imploring His protecting providence in behalf of every right endeavor to build here an institution of sound and Christian earning, to be evermore a blessing to the State, to the Nation, and to the World. Having thus accomplished the purpose of our coming, we returned, well satisfied that the site was well chosen. The Memorial Tablet was affixed to the Rock by the University Class of '96.

were four represented; a college life seemed to be in reality commenced. A new and larger building was completed, containing a chapel, lecture-rooms, library, etc.

The college year would close in May, and then would occur our first commencement, and the graduation of our first class. This of itself, we well knew, would be a notable occasion in this far-away country, and it occurred to the Faculty that something might be added to it that would greatly increase its interest and usefulness. This was to invite a meeting of all graduates of college or university standing, to take place on the day and evening before commencement, to have an oration and poem in the afternoon, and a collation in the new chapel in the evening, to be followed by toasts and speeches. This would be something absolutely new, and might gather around the college a large number of literary men whose influence would be of the greatest value.

So a letter of invitation was sent out by the Faculty to college graduates, inviting their attendance at a general gathering, to be held on May 30th in connection with our first college commencement.

The invitation was accepted by a large number of representative men, together with several distinguished men from the East who happened to be here. After the oration and poem in the afternoon, came the gathering in the chapel in the evening. The guests filed in and took their seats, one hundred and fifty strong. One hundred and fourteen answered to their names as graduates, mentioning the colleges from which they came, and the year of their graduation. There were thirty-four of these institutions, and all but two were American.

No description can give an adequate idea of the scene that followed for four or five hours. The company consisted of educated young men, making each others' acquaintance for the first time in a free and easy social way that was hampered by no rules of precedent. The expressions of the countenance, attitudes, tones of voice, and a thousand

other things have to be taken into account in order to get the real flavor of the occasion. There was the interplay of wit and humor between scholars of various trainings, together with plenty of good sense and wholesome truth. The time seemed all too short, and it was the saying of all that it was like no other alumni meeting that they ever attended. It was so thoroughly enjoyed that it perpetuated itself, and was held annually on the day before commencement in the years that followed. It undoubtedly had much to do with creating a sentiment in favor of the higher education in this state which has shown itself in so marked a degree since.

The usual graduating exercises took place in due form on the following day, and we were thoroughly launched in our college career.

Its financial supporters were the business men of the principal cities of the state. As long as business prospered we got on tolerably well, but when the war closed, and the vast national debt hung over the country, and the currency was fluctuating, and reconstruction was in the future, and everything was uncertain, and business was completely unsettled, we were confronted with problems hard to solve.

In the changes of fortune not a few of the most generous givers to the college were utterly disabled. Others could not be found to take their places. At the same time, the growth of the college made more means an absolute necessity.

Sitting on the platform with me at commencement, I think it was in 1867, Governor Lowe remarked to me: "You have here in your college scholarship, organization, enthusiasm and reputation, but not money; we, in trying to undertake a state institution, have none of these things, but we have money. What a pity they could not be joined together!"

Well, to drop the narrative here, they were "joined together," and hence the University of California to-day, an institution grown already to such proportions as no one

in the "early days" would have dared to predict in less than two hundred years.

And now, gentlemen, I venture to predict that the State of California—that the men and the women of large wealth in the state—will never suffer this University to be hindered in its great work by lack of means.

THE ASSOCIATION OF AMERICAN UNIVERSITIES.

IRVING STRINGHAM and A. O. LEUSCHNER.

The fourth annual meeting of the Association of American Universities was held in the city of New York on December 29–31, 1902. All of the fourteen universities constituting the membership were represented. The total number of authorized delegates was nearly forty, but a few of these were prevented from taking part in the deliberations of the Association on account of simultaneous meetings of learned societies in New York, Philadelphia and Washington. Those actually in attendance were: University of California, Professors Stringham, Leuschner and Plehn; Catholic University of America, Rev. T. J. Conaty and Professor Shea; University of Chicago, President Harper and Professors Small and Barker; Clark University, President Hall; Columbia University, Dean Van Amringe, Professors Perry, Kirchwey, Starr, Keppel and Tombo; Cornell University, Dean Crane and Professor Huffcut; Harvard University, President Eliot and Professor Wright; Johns Hopkins University, Professor Haupt; Leland Stanford Junior University, Mr. Timothy Hopkins and Professor Duniway; University of Michigan, Professor D'Ooge; University of Pennsylvania, Professors Newbold and Penniman; Princeton University, Professors West and Fine; University of Wisconsin, Professor Birge; Yale University, President Hadley.

The first gathering of the delegates took place at one o'clock on December 29th at an informal reception in

the Trustees' Room of the Columbia University Library Immediately afterwards the delegates were entertained at luncheon in University Hall. In welcoming the delegates on behalf of the Columbia University, Dean Van Amringe expressed President Butler's great regret at not being able to receive the delegates, and stated that the critical illness of Mrs. Butler would prevent him from attending the meetings. At the close of the afternoon session a letter of regret was addressed to him by a special committee.

The discussions, as provided for by the program prepared by the Executive Committee, took place in the Trustees' Room of the Library building, and were conducted in four formal sessions. Brief summaries of the discussions are here given. Full reports will appear in the Association's Journal of Proceedings.

THE CERTIFICATE METHOD OF ADMISSION.

The discussion upon the first topic, *The Certificate Method of Admission to Colleges and Universities*, (*a*) from accredited schools, (*b*) from schools not examined by the university or formally accredited, was opened, for the University of Pennsylvania, by Professor Penniman, with a paper describing in detail the various systems in operation for admitting students to universities. The accrediting systems of the University of California and of the University of Michigan were described at length, and were characterized as typical. It was made evident that the accrediting system is responsible for the rapid development and high standard of secondary schools in California. The opinion prevailed, however, that owing to differences in local conditions, it could not be put into operation with the same success in the Atlantic States.

THE REQUIREMENTS FOR ADMISSION TO PROFESSIONAL SCHOOLS.

The discussion of the second topic, *The Requirements for Admission to Professional Schools*, was opened by

President Eliot with some informal remarks concerning the policy and practice of Harvard University, and the high ideals that should be set by the professional schools of our universities. Professor Huffcut then presented a more formal paper on behalf of Cornell University, and a vigorous general discussion followed. Professor Huffcut contended that students should be admitted to the schools of medicine and of law directly from the high schools, partly because the requirements should conform to the prevailing educational facilities of the country, partly because the studies of the professional schools are of college and not of university grade. To this view exception was taken by all the other speakers, particularly by President Eliot, who contended that professional men control the affairs of this country, and that it is the function of universities as distinguished from professional schools to equip them for their responsible positions. It was admitted that the smaller professional colleges, whose matriculates come directly from the high schools, meet a distinct need in the country, but the men in control of affairs should be more broadly educated than the graduates of such institutions, and a full collegiate training is the least we should demand of them as a preparation for their strictly professional studies. We must make the university professional school distinctive and distinctly higher than its commercial rival. The university should turn out, not mere practitioners, but masters. The delegates of the University of California take pleasure in reporting that the recent reorganization of our schools of medicine and law elicits strong approval from our colleagues in the Association. A prediction was made that the universities not demanding a liberal education from its professional graduates would be out of the race in fifteen years. During the discussion Professor Barker, on behalf of the University of Chicago, presented an able thesis on the true ideals which professional schools should strive for, and his remarks won the hearty approval of his audience.

SCOPE AND MEMBERSHIP.

The report of the Executive Committee concerning the scope and membership of the Association formed the topic for discussion at the third session. In accordance with a resolution adopted at the third annual meeting, the Executive Committee had drawn up a report on the question of membership, printed copies of which were distributed to the members in advance. The printed report was presented on behalf of the Executive Committee by President Hadley, in the following modified form:

"The matters referred to the consideration of your Committee by the vote of the Association of American Universities on February 26, 1902, involve two separate questions. One question concerns the range of topics which should be treated by the Association in its discussions, and the desirableness of a change in the constitution to provide for such increased range. The other concerns the policy to be adopted with regard to increasing the membership of the Asseciation, in order that the numerous applications submitted to this body may be wisely and intelligently handled.

"With regard to the first of these questions there is no difference of opinion in the minds of the Committee. It is thought desirable to include within the scope of the discussions of the Association all those questions and problems which arise in organizing really advanced instruction in the various departments of university life. It is impossible to draw a distinction between university studies which are non-professional and those which are professional in their character; because in our modern institutions much of the so-called non-professional work of the graduate department is intended as a preparation for the calling of the teacher, and much of the work of the professional schools is occupied with actual research. The problems of the different departments are so connected and interwoven that they have to be treated together in the universities themselves; and it seems desirable that a body like the Association should treat them in the same way.

"Your Committee does not, however, believe that an amendment of the constitution is necessary in order to make this change possible. The very fact that the different things are thus necessarily connected is of itself sufficient, in the opinion of your Committee, to justify it in treating these wider problems as germane to the original purposes of the Association without any alteration in the constitution itself—a thing which, when not absolutely needed, seems to your Committee unwise. In preparing the program of the Association's next meeting your Committee has felt justified in including the widened range of topics, without waiting for any constitutional change.

"With regard to the second question, concerning the enlargement of the membership, it is the opinion of the Executive Committee, 'that the membership should not be enlarged in any such manner as would require an amendment of Section 3 of the Constitution.' (Section 3 of the Constitution refers to the Election of New Members and reads: 'Other institutions may be admitted at the annual conference, on the invitation of the Executive Committee, endorsed by a three-fourths vote of the members of the Association')."

The report was unanimously adopted. The following procedure for electing new members was then agreed to: "Nominations for new members shall be made in open meeting and shall be referred to the Executive Committee. At the next following annual meeting such institutions as are endorsed by the Executive Committee shall be voted upon."

It is a cause for congratulation that the question of membership has been settled. It is understood that only institutions that maintain graduate schools are eligible. Three institutions were proposed for membership and will be voted upon next year.

A proposal to change the name of the Association elicited favorable comment and was referred to the Executive Committee for report at the next annual meeting.

UNIFORMITY OF UNIVERSITY STATISTICS.

Uniformity of university statistics as to enrollment and expenditures, formed the subject of a paper presented by Mr. Keppel, on behalf of Columbia University. This paper, which contained many valuable suggestions and was received with great interest, will be printed in the Journal of Proceedings, and will be discussed at the next annual meeting.

The officers elected for the coming year are: President, University of Chicago; vice-president, Princeton University; secretary, Columbia University; remaining members of the executive committee, Catholic University of America and Leland Stanford Junior University.

In order to avoid conflicts with the annual meetings of scientific societies, the next annual meeting will be held in the spring of 1904, the date and place to be selected by the Executive Committee. New Haven, Washington, Baltimore and San Francisco are under consideration.

The fourth annual meeting was one of the most successful yet held. All of the universities were enthusiastic regarding the work of the Association, and the Association seems destined to become an important factor in higher educational matters in the country.

At the last session the appointed discussion of the day gave way to Principal Parkin, the representative of the trustees of the Cecil Rhodes Scholarships, who desired to make known to the members of the Association the purposes of the Scholarships, and to get advice concerning the best method of administering them. Dr. Parkin is at present traveling in this country with these objects in view. An interesting discussion followed his statements and the Executive Committee was empowered to assist him with further advice. The first appointments to the Cecil Rhodes Scholarships will probably be made in 1904.

Tuesday evening, December 30th, the delegates were tendered a banquet at Sherry's by the alumni, resident in New York, of the fourteen universities represented in the

the Association. About three hundred were present. The large ball-room at Sherry's was tastefully decorated with the flags of the fourteen universities. In the absence of President Butler the banquet was presided over by Dean Van Amringe. The following toasts were responded to:

The American Universities, Arthur Twining Hadley; The Universities and Modern Business, James Waddell Alexander; The Universities and Public Affairs, Wayne MacVeagh; The Universities and the Learned Professions, Charles W. Eliot.

OXFORD IN THE PAST AND PRESENT.

By H. A. Overstreet.

There are certainly few universities that can vie with Oxford in universality of interest. The art-student makes his pilgrimage to the gray old piles of Merton and Christ Church; the mere lover of natural beauty comes to linger in the college gardens or on the tree-shaded windings of the "Char;" the mediævalist peers in hidden corners for history graven in stone, or, in the yellow manuscripts of the Bodleian, lives over again the manners of the past; the student of national life finds here in musty college rooms and gray-girt college quads the centers of great movements in English and in world history; and lastly, the unpretentious undergraduate comes to hear the old philosophies and the new, the old culture that is the new, from the lips of Oxford's living present. Old Sam Rogers, in the days of Elizabeth, was so enamoured of Oxford that he wrote the following eulogy:

> "He that hath Oxford seen, for beauty, grace,
> And healthiness, ne'er saw a better place;
> If God himself, abode on earth should make,
> He Oxford, sure, would for His dwelling take."

That is pretty high recommendation; but I hardly think that modern Oxonians would go the whole length of it. Oxford's climate is not quite what we should expect in Elysian fields; in fact it is so uncelestial that Englishmen explain the well-known longevity of Oxford residents in this way: the poor Oxford inhabitants, with their awful

climate, they say, never have much joy of life; so the good Lord makes it up by giving them plenty of it.

But, fortunately, Oxford does not have to depend upon her climate nor upon her long-lived inhabitants for her fame. She has had a significance of activity that fills many a page of English history. With all her peaceful look, her scholarly seclusion, her stillness of garden and cloister walk, Oxford has been the very center of some of England's fiercest struggles. There is an old rhyme that puts this most aptly: "When Oxford draws knife, England's soon at strife." In a military sense, to be sure, Oxford has counted for almost nothing in English affairs; her nearest approach to military importance was in the days of the Civil War, when Charles I. shut himself up in Oxford and was besieged by Cromwell's forces. But Oxford has had a greater than military power: she has been the source of *ideas* that have shaken England again and again. London has always been England's military center, but London never produced a Wyclif to disrupt the nation, or a Cranmer or Ridley or Latimer to preach the doctrine of the Reformation and plunge England into religious warfare.

In the middle ages, we find in Oxford a herald of coming struggles between Church and State, between the old and the new, between dogma and reason. As early as the thirteenth century, Roger Bacon, in his Friar's study, wrote his plea for a new method of philosophy,—a method of investigation of nature that was to supplement the accepted theology. We ordinarily regard Francis Bacon as the first of the moderns, because of his plea for natural science, but Roger Bacon had long before made much the same plea, and had made it, in a sense, more wisely and deep-sightedly. Roger Bacon was the forerunner of the little band of advanced thinkers—Giordano Bruno, Cusanus, Galileo, Newton, Francis Bacon himself—who were to point out the fatal error of scholastic thinking, and who for so doing were to suffer the persecution of Rome. What great upheavals, religious and political and intellectual, this new

plea of Roger Bacon's brought in its train we are well enough aware.

Later the impassioned Duns Scotus and his pupil Occam began the battle against the political supremacy of Rome. But not till a century after Roger Bacon did the master-fighter arise—John Wyclif, "the morning star of the Reformation," as he has been called. Then was the battle between English state and Roman church for the first time openly drawn. Oxford joined Wyclif almost to a man, willing to bear the despised name of Lollard for the sake of the higher truth. Wyclif was master of Balliol College, and in his time was Oxford's chief intellectual power.

In the years of the Renaissance we find Erasmus and Colet in Oxford teaching the new Greek learning that was to be the leaven of the old ideas. In those years, too, Thomas Moore wrote and published his great political satire.

Oxford, too, was the center of history in the terrible days of the Reformation, yielding up her three martyrs, Cranmer, Ridley and Latimer, at the stake. "Play the man, Master Ridley," cried the old fighter, Latimer, as the flames shot up around him; "we shall this day light such a candle by God's grace in England as I trust shall never be put out."

It would be interesting to recount in detail the great movements in English history of which Oxford has been the center or an important factor, but for this there will be no time. It is enough to say that when Oxford did draw her scholar's knife, England was soon at strife; and the strife was most often no vulgar battle for dominion or wealth, but for a truer life of state and church. Oxford by her very nature, as Mr. Green, the historian, has pointed out, was a menace to the old church and the old state. All her intellectual life was a threat to the dogmatic sovereignty of Rome; every scholar trained to the pure love of knowledge brought the day nearer when reason should submit to reason alone and not to authority. And, on the other hand, all her democratic life—the student life where

the only aristocracy is one of minds—was a threat to the old feudalism, to the theory of nobility by the grace of God. And if feudalism collapsed and Rome lost her hold in England, not least of the credit was due to the gowned thinkers of Oxford, to the leavening of their ideas that made of the England of mediæval slavery an England of modern freedom.

It is curious to note, as Dr. Rashdall has pointed out in his *Universities in the Middle Ages*, that Oxford came to be one of the great world-centers of learning as the result of a kingly quarrel. It will be remembered how Thomas Becket, bosom friend of Henry II, and a not too scrupulous courtier, was, as a token of royal regard, made Archbishop of Canterbury, and how, after the assumption of this religious dignity, his whole character changed, so that, instead of playing the church into Henry's hands, as the king had hoped, he became the staunchest defender of the church's privileges; how Henry, angered beyond endurance by Becket's obstinacy, forgot his old friendship and the sacredness of the church's Primate and drove him out of England. Becket found sanctuary in France, and the French king took up his and the church's cause. This phase of the quarrel is well enough known. It is not so generally known, however, that one of the methods of retaliation employed by the English king against Louis of France for harboring Becket, was an ordinance that henceforth no clerk should cross the Continent to England or from England to the Continent without leave of the king or his justiciar in England. Moreover, at the same time all clerks who possessed "revenues" in England were to be summoned by the sheriffs to return within three months "as they loved their revenues." "There can be no doubt," says Mr. Rashdall, "that in the middle of the twelfth century scores, in fact hundreds, of masters and scholars beneficed in England must have been studying in the schools of Paris. Equally little doubt can there be that a great portion of them 'loved' their benefices.

Hence we are absolutely bound to infer the return to England, in obedience to the royal command, of a large body of Parisian masters and scholars." It is reasonable to suppose that these masters and scholars transferred their abode from Paris to a city of England, without entirely breaking up their classes; and there are no traces of any other settlement than in Oxford. Indeed, it is just at this time that Oxford appears in history as a place where many masters teach and large bodies of scholars are congregated.

This date, then, of the quarrel of Henry and Becket—1167–8—would seem to mark the real beginning of Oxford as a university. There are historical traces of masters teaching there before that time, but Oxford's important teaching activity does not seem to have begun until then.

But it would be a mistake to think that now that this body of masters and scholars has migrated to Oxford, she appears as an organized institution in the sense in which we speak of a university,—an institution employing a number of teachers and admitting students. On the contrary, both scholar and master were each upon an almost independent basis. The master was just as unattached as a private coach in our present days. He set up his residence, announced his lectures, and received his fees from the scholars, who flocked to him in great numbers or stayed away just as he happened to be a powerful lecturer or not. There was at first nothing to test the master's competence but his force as a teacher. The scholar, on his side, coming up to Oxford, passed through no tests of any kind, but simply looked about for a Hall or Hostel where there was a vacant room, settled himself there, and chose his lecturer quite independently.

Students banded together and formed Halls or Hostels, electing a principal from among their own number, or perhaps from among the masters, quite as they pleased. If the principal were a master, his duties would probably include lecturing; if he were a scholar, he would be simply a kind of steward or house-manager. In the early centuries

there seems to have been little or no disciplinary supervision of the young scholars, many of them thirteen or fourteen years of age; they could roam the streets day and night as they pleased, could go to lectures or to taverns quite as they were minded, could be in at night or not without fear of punishment. In those days Oxford was a seething town indeed! Its rickety houses, in their narrow, dirty lanes, were crowded with boys under no supervision or discipline; the masters fought their rivals as gaily as did the students; while town and gown were at fiercest enmity and ever ready to fly at each other!

Such academical organization as existed was simply that of custom or unwritten common consent. It is not until some time afterwards that the multitudinous aggregate of hostels and masters takes on a legally organized form through the office of chancellor.

But the office of chancellor, or head of the university, made much less of a change than we should imagine. The chancellor had no appointing power, no supervision of the teaching or of the courses given, no power of planning for the work of the university as a whole. He was simply the legal bestower of degrees and the disciplinary head. It is important to notice this—and here is the key to the understanding of Oxford organization—that the groups of scholars, with their self-elected principals, and the various masters were, except in the regulations concerning degrees, in no academic or financial way controlled by the university's head. We may move forward eight centuries and find the conditions practically the same to-day: Oxford's twenty-one colleges are independent bodies, each owning its own land, receiving and dispensing its own moneys, employing its own teachers, electing its own Head, conducting its work as it pleases, performing all the academic functions, in fact, except examining students and granting degrees. It is in the two latter functions that the university exists: it sets the examinations, grades the students, and confers degrees. We can easily see how different this is from

our own university organization. With us the college has practically no independent existence; finances are *university* finances; appointments are *university* appointments; the head of the university is the chief of all the colleges; a student is primarily of the *university*, and only secondarily of a college. In Oxford, on the contrary, and the same may be said of Cambridge, a man never thinks of calling himself an Oxford University man, but a Christ Church man, a Trinity man, a Corpus man. In Oxford, the President of Magdalen, say, has to look only to the Fellows of his own college for election; the head of the university has absolutely no voice. There is the same independence as to fees, salaries, lectures, chapel attendance, etc.

And yet the university is not so unimportant as might appear. It is the university which sets the standard for the degrees and confers them, and it is the university consequently, which practically, though through no overt control, sets the standard of college teaching. In this way, the university is the element that makes of what would otherwise be a mere aggregate of colleges, an organized, systematized institution. It bears to the colleges much the same kind of relation that our Federal government bears to the various states,—a relation that we do not find in our American universities, which, curiously enough, are built rather upon the monarchic plan.

This corporate independence of the colleges is the natural development of the early stages of Oxford life when students voluntarily banded together in Halls, elected their own principals, and managed their own financial affairs. This independence of colleges is perhaps the most characteristic and character-giving phase of Oxford organization.

One of the most important features of the colleges is the so-called foundation or scholarship system. If we look to the early history of the colleges, we shall find that the method of their founding and support was pretty uniformly as follows: a man of means, dying,

would bequeath a certain amount of money, the income of which was to be expended in masses said for his soul by university scholars. In this way he provided for his own shorter residence in purgatory and helped poor scholars to an education. There are instances upon instances of this kind of bequest—curious examples of middle age superstition and of men's pious panic to save their souls. The students thus provided for would either join Halls quite independently or band together in Halls of their own, each band under the name of its anxious benefactor; in the latter case they would form the beginnings of modern colleges. The founding of Balliol College is well worth noting, as it is in curious antithesis to the pious self-regard just mentioned. Balliol shares with Merton the honor of being the oldest Oxford college; it was endowed about 1260 by Sir John de Balliol, father of the Scotch king of that name. Sir John was by no means an enlightened patron of learning, nor had he—great freebooter of the north as he was—any interest in pale-faced clerks mumbling over their musty Latin. But Sir John de Balliol misbehaved himself most grievously; in the pride of his freebooting, he had, as the old records tell us, "unjustly vexed and enormously damnified" the church of Tynemouth and the church of Durham, and for that outrage was brought by the bishop to repentance. The bishop compelled the proud old soldier to kneel at the door of Durham Abbey to be publicly scourged, and to promise to provide a perpetual maintenance for a certain number of poor scholars in Oxford. In this quite unmunificent and perhaps protesting manner, Balliol College was born,—again the instance of the private wrong-doing which the church knew how to convert into a public benefit. But, after all, the Balliol foundation would not have come to much had it not been for the real generosity and care of Sir John's wife, Devorguilla. After her husband's death, she placed Balliol upon a permanent foundation by increasing the endowment and drew up the charter of Balliol Hall. Thus, although Balliol must needs look to the old Scotch

chieftain as its father, all its devotion and loyalty is to its real patron saint, Devorguilla, the woman. It is curious in modern days to hear in Balliol chapel the prayer sent up daily for the souls of Sir John de Balliol and Devorguilla, his wife. It is touches such as these that make the mediæval atmosphere of Oxford.

It would be interesting to examine the organization of the most important of the twenty-one colleges, but for that there is no time. What we should notice is mainly this, that the colleges were not founded as fee-receiving institutions, but essentially as a means of support for poor scholars. Thus we shall not be surprised that in modern days a very great part of the student population of Oxford is composed of men "on a foundation," *i.e.*, students who are receiving scholarships (ranging now from two hundred to five hundred dollars a year). But we make a mistake if we suppose that the Oxford or Cambridge scholarships are, at the present time, merely a support for poverty. They are academic badges of honor; for they must be won, not by a show of poverty, but by proof of superior attainments. The holder of a scholarship wins his support in competitive examination, and the distinctive gown which he wears, far from being a sign of degradation, is his proudest possession. It is a common occurence for a rich boy to go in for a scholarship and, upon winning it, to return the money to the college.

In the middle ages the college student was of the clerkly class, which did not mean that he was in orders, but that, gowned and tonsured and living celibate, he enjoyed the immunities of churchmen. If he committed a crime, he was subject alone to the jurisdiction of the clerical or the university court. This freedom from secular control, together with the too frequent laxity of the clerical courts, were the main factors that roused and intensified the enmity between town and gown. With all the sympathy that one has for the advance of learning, one often cannot help but side with the poor townsfolk against the arrogance

and bullying of the gownsmen. In Oxford, especially, the gownsmen had so much the stronger hold that the town soon ceased to be able to maintain an effective stand against them.

The university, however, when once it had become organized, was strenuous in its efforts to prevent clashing. Students were ordered to be within their halls or colleges by eight or nine o'clock upon pain of a fine; proctors with poleaxes, and accompanied by armed servants, patrolled the streets to arrest the unruly. During the day, the scholars walked out two by two, chaperoned by a master; to walk alone on the streets was considered unseemly and suspicious (a curious survival of this is found in the modern Oxford habit of walking out in the afternoon arm in arm); students were warned against indulging in "profane games" (tennis was one of these), "immodest runnings and horrid shoutings," and against frequenting taverns. In the present days many of the old prohibitions are still actively enforced: students must beware of taverns, must never spend a night out of college except with permission, and must be within the college walls when Big Tom, the bell of Christ Church, peals its hundred and one strokes at five minutes after nine o'clock. If the student comes in after nine and before ten he is fined a penny; if after ten, twopence, if after eleven, threepence; if after twelve, he is required to make a polite call upon the Head of the college, with a fine of five or ten shillings to boot. Students must wear their academic gowns in the streets at night on pain of a fine of five shillings if caught without them. Proctors, attended by "bulldogs," which is the undergraduate's name for the fleet-footed college policemen, prowl the streets in search of the daring ungowned. How very different this is from American university discipline will be easily seen. Doubtless the discipline is not needed under our different conditions, for our universities have not grown up at war with the towns. But in the crowded cities of Oxford and Cambridge the precautions have been necessary in the past and are

necessary at the present. The last town and gown riot in Oxford occurred some years ago on occasion of a visit of the Prince of Wales. The gownsmen formed cordons and proceeded to take possession of the town, but the townsmen protested, and the usual fight ensued, with the result that a townsman was killed on the High Street. Since then the spirit of the university has been against the barbarous custom, and there is no doubt that its vogue is over.

But we have spent enough time over Oxford's past, and may come now to the present. Oxford, I am sure, is always a great surprise to Americans. We enter the town with the expectation of seeing a great pile of magnificent old buildings grouped together in the middle of the city, for we are accustomed to the university that is built around a single campus. Instead, when we ride up the High Street from the station, we are surprised to see here a front of gray Gothic, quite alone in the midst of city houses, then here another front, surrounded too by city buildings. We ride on and on and seem to find plenty of gray fronts with glimpses through into green quadrangles, but we find no university. If, then, we are travellers fortunate enough to have heard this paper, we shall remember how it was shown that in Oxford the college is the palpable reality, the university only the idea, the organizing factor. The gray piles that front the High, and the Broad, and the Turl, and St. Catherine's Lane, each standing in grim, solitary grandeur, swarmed about by the cackling crowd of city houses,—these slumbering old piles are the modern bodies of the old student Hostels. New College, in its cincture of moss-grown city walls, stands proudly independent, tracing its life history back to the Middle Age groups of students who supped and lodged in Hart Hall and prayed for the salvation of their gracious benefactor, William of Wyckeham, Bishop of Winchester; Merton dreams her scholar's dream on the Merton fields, as in the days when the great High Chancellor gathered his

little circle of scholars there; Christ Church harks back to the days of the great Wolsey and the eighth Henry; Balliol, gazing out upon the Broad and the memorial of the martyrs, dreams of the days when a handful of poor Scotch pensioners conned their Latin near the city walls and sent up their prayers for John de Balliol and his good wife Devorguilla. And so it is with the other colleges; each has its special foundation and life history; each has its independent plot of ground; and the city has grown up and swarmed around them.

The modern Oxford man lives within his special college walls and is watched over by his college officers. In every gray front that faces the street one sees the massive porter's gate, relic of a time when Gownland had often to barricade itself against a furious town. Now the gate serves only to bar in the students at night; and when once it closes at nine o'clock, there is no latch-key for the student but the porter and a fine. Within the porter's gate one comes upon a college quadrangle surrounded by battered dormitory walls. Beyond is another quadrangle,—in some colleges as many as four or five in succession; and somewhere in the chain of them are the college gardens, glorious English lawn covered with elms and limes and beeches. Here students lounge about, reading or talking or bowling. In these gardens, with their girdle of gray walls, there needs but some black-gowned don stooping in talk with a gowned undergraduate to give that old-world touch that takes one back a half-dozen centuries.

Every college has its chapel, and in the early morning we might see the students with half-opened eyes and ill-concealed *déshabille* trooping in to morning prayers. In some colleges the student is allowed the alternative of chapel or roll-call, and as roll-call takes only about half a minute, while prayers require some fifteen minutes of sitting in an unheated stone-built chapel, roll-call is far and away the favorite.

Lectures begin at nine o'clock and continue until one. After one o'clock, college lectures are over; a few university

lectures are given at the five o'clock hour, but these are only sparsely attended. The afternoon is altogether the student's own to do with as he pleases, and he generally pleases to go on the river or play football or tennis or cricket or tramp up the Berkshire hills until half-past four. At half-past four he is roaring hungry for tea and he usually has a half-dozen college mates who are equally hungry. With them he repairs to his college rooms, and while his friends sit about "ragging," he stirs up the fire and puts on the kettle to prepare tea. This institution of afternoon tea is one of the great charms of Oxford life. To sit with four or five college mates about an open fire in the dusk of a winter's afternoon, to drink and smoke and talk, while the shadows deepen and the flickering fire makes fantastic play with the century-old study room, is a bachelor delight that only a bachelor can appreciate and can appreciate only if he has lived it. The rooms are not always overclean, but the darkness hides all that; clothes and books are scattered about, the coal gets dumped over the rug; perhaps for lack of a chair one of the men is sitting on the coal scuttle; the mirror over the fireplace holds a year's accumulation of cards and bills and programs nicely grayed over with mediaeval dust, the air is thick with tobacco smoke; ashes are dropped on the floor when rising is too laborious: but then the servants, "the scouts," are only male, and we are all gloriously aware that there is no one to fuss and fiddle and clean up and disarrange by rearranging.

This bachelor delight will break up at about six o'clock, and then if the undergraduate is a hard reading student, he will put in an hour of study until seven o'clock dinner. He dines in Hall with the whole college, the dons included. These superior beings sit at High Table, which means a table raised upon a platform at the end of the Hall and placed at right angles to the students' tables. Incidentally, the dons have a much better dinner than the undergraduates. With the exception of dinner, the student has all his meals in his own rooms. He is compelled to

have two rooms, a bedroom and a sitting room, or a "bedder" and a "sitter," as the Oxonian calls them: no student is allowed to sleep and study in the same room. This of course makes living more expensive than it is with us.

After dinner the student may study or may have friends in his room for coffee and a talk, or he may go to his literary society or to the Union, as he pleases. He may go to the theatre provided he does not sit in the galleries! How different is this from Germany and America!

The Oxford term is so short—eight weeks—that one coming from the three and four months American term hardly feels that he has started before lectures are at an end. A wag has said that the Oxford climate is so bad that eight weeks is all of it that a man can stand at one go. After a term of eight weeks the student has six weeks of vacation; then another term of eight weeks, followed by a six weeks' vacation; then another term of eight weeks, and finally a vacation of four months. Seven months vacation! But that is not quite as bad as it sounds, for the English undergraduate doesn't really get a vacation. If he is a student reading for honors, he expects to do little more than attend lectures and take notes during the term, and to spend his vacation reading up his notes and anticipating the next term's lectures by reading the texts in advance. In doing thus, the honor student keeps up his work throughout the year and suffers in it no break of continuity. That this continuous system of study is wisest for him will be admitted when it is remembered that the English student, after he has finished a course, does not dare to forget what he has learned in that course. In our system, it is too often the case that the student, having been examined and passed in a course, and knowing that the hours are once and for all credited to him, sets about promptly to forget all he has learned in it. But the English student is not credited as he goes along: all his four years' work is directed to one end—the passing of the final examination, which tests him in the complete subject matter of

his university course. Hence he does not dare to forget: the day of examination is for him a veritable judgment day, when all his past life is brought up before him. This system has one undeniable result: the Oxford student digests his learning; what he gets he holds, turns it over and over, improves it, develops it, sees it in new lights as he goes along, so that when he comes to examination, whether he be a brilliant man or not, he has been compelled to coördinate, unify and *think* all his work. It is a system that makes for independent thinking, for grasp of subjects as a whole rather than as scrappy and detached. To be sure, it is not every Oxford student that benefits by the system; but the effect upon the honor man of moderate ability is to make him patient, self-resourceful, scholarly, and above all free from the unscholarly vice of jumping quickly to conclusions.

But to see more clearly what makes for the best results in Oxford teaching, we must examine for a moment the college system of training to which the undergraduate is subjected.

Each college is a little kingdom by itself. Sometimes it is a very small kingdom, inhabited by not more than forty or fifty students; but even the largest have no more than two or three hundred men. Each is a little walled-in commonwealth, with the master for chief and the dons for his council. Each commonwealth is small enough for every man to be known and held to a citizen's account.

First and most important of all, the college student has his private tutor—which does not mean a hired coach, but a Fellow or Tutor of the college, appointed to supervise the student's work. To him the student goes at all times for direction; and regularly once a week he spends an hour of private consultation with him, reading him a prepared essay or Latin verses or Greek prose or whatever else he may be appointed to do. In Balliol even the Head of the college undertakes this arduous task of hearing men in private: Dr. Caird takes especially the honor men who are in their

last year and gives them their finishing touches in philosophy. The work is very arduous for the college staff—four or five hours a day of teaching men in private, and at all times of the day. But hard though it be for the tutors, the value for the student can scarcely be estimated. To come into close personal touch for a year or more with a teacher of power, to be taken into his friendship, to walk out with him in the afternoons, to breakfast and lunch with him, has an educative value for the young student that nothing else can give. If you remember Mr. Gray in *Robert Elsmere*—Thomas Hill Green in life—and the great power that he possessed over his students, you have an instance of the close personal touch with his students of one of Oxford's fine men. The great influence of Benjamin Jowett is another case in point. To be sure, not all Oxford dons are inspiring men, personally or otherwise, but there are a very great many that are, and the college system makes the best use of them for the student.

Besides attending his private tutor, the student hears from ten to twelve lectures a week—never the terrible nineteen lectures that some of our students hear. But, again, it is the difference in the system of study that makes the difference in the number of hours of lecture. With our credit system, the student's work is covered strictly by the courses he attends; the Oxford student, on the other hand, never thinks of taking lectures on everything that he must offer for final examination. For example, he must offer Thucydides: his method will be to translate the text for himself, and then to go to a course of lectures which are merely a commentary upon the text. Again, he must offer several works in philosophy: here, again, he will read the works for himself and hear lectures that are the best commentary upon them. He never expects to be catechised in class; he does all the catechising himself, and he is in earnest about it; for his grade in the finals will depend largely upon his independent efforts. In brief, the Oxford man is taught to lean as little as possible for support upon

the lectures, but to learn to support himself, to do his own reading and thinking. And so we find the student "going down" for his vacation with a box full of books to be read through before the following term.

It is this that gives to the man of moderate ability a healthy independence of thought and resourcefulness. And I think there can be no doubt that the love for scholarly work that so many Englishmen in political and business life have is due chiefly to this early habit of delving into books for themselves and making their own discoveries.

I have used the phrase "honor man" thus far without explanation. There are two standards of bachelor's degree in Oxford: a man may go in for a pass degree or for honors. If he goes in for a pass degree, his most effective course will be to spend his days with the hounds, his nights at wine parties, and, during his last year, an hour or so a week with a tutor. The pass degree amounts to so little that no self-respecting student wants it. If the student goes in for honors, he must work; in the end he will be graded first, second, third, or fourth, or he will be "ploughed." The man who wins a first in the Oxford finals—especially in the Greats school—has England at his feet; he is a made man. A second is well worth having; a third puts a shadow on a man, but he may be a good country gentleman on that; but a fourth condemns him to the world that is outside the pale of the scholarly,—haply to the indignity of the shopkeeper's assistant.

One of the most delightful phases of Oxford is her athletic life. Nowhere, perhaps, is open-air exercise taken with such thorough enjoyment. Everybody exercises: there are no thousands sitting on the bleachers watching a score of men do the work. Each college has its athletic field. In winter and spring, men play football and hockey, in summer, tennis or cricket. But all the year round the Isis and the Cherwell are crowded with boats,—the stalwart, woman-hating man on the Isis, the romantic brothers

canoeing or punting with the fair sex on the winding Cherwell. And if men are not on the athletic field and the river, they tramp the hills or cycle through the Thames valley. The university gives the student the whole afternoon for exercise, and he makes the best of it.

Some one has described Oxford as "the city of dead languages and undying prejudices." It is hardly as bad as that, perhaps, for, while Oxford is mediæval to the core, and proudly so, she is not altogether unstirred by the forces of modernism. Oxford has even succumbed to railroads; worse still, to tramways within the city limits. The days when the undergraduate was compelled to coach it to the Varsity town —with many a stop for bibulous entertainment on the way— are over, and now he "books through" on the Great Western like any up-to-date Londoner. It is told in these days how great was the fight between the Great Western and the town council for a railway franchise. The railroad won, and in the train of its victory came changes unlooked for, and, by many an old don, unwished for. The railroad brought Woman; and with the advent of the fair creature, the shy bachelor don fled into retirement.

In the old coaching days, when Oxford was almost entirely of university population, the male ruled rampant. College customs encouraged the celibate don and frowned upon the maritally minded. Many of the fellowships were awarded upon condition of the incumbent remaining single. Such anti-matrimonial conditions were strictly to the advantage of the colleges, as they secured the residence of the Fellows within the college walls, where they could have a watchful eye over the undergraduates; but they hardly served as an inducement to the English maiden. Undergraduates were too young to marry; the dons would not or could not marry; and so femininity "with scornful eye, looked [Oxford] on and passed her by." But the railroad brought Oxford within easy reach of London; graduates who retained their scholarly habits brought their families; mothers, sisters, and the more

especially interested maidens paid frequent visits; and, as it turned out, these were only the vanguard of an indomitable army of the fair sex come to conquer the bachelor don. The change was really of the greatest moment to Oxford. Her undergraduates had been growing up quite out of all feminine atmosphere, and that, too, after they had been spending six or eight years of school life away from home and entirely in the company of boys. The result was in many cases the singular narrowness of the merely masculine, the distorted views of women, and the consequent erroneous regard. The mark of those days is not yet removed from Oxford, for in the great fight of a few years ago made in behalf of the right of women to receive Oxford degrees, the party advocating the right—and the permanent teaching body of Oxford (unfortunately, not the only *voting* body) was almost entirely of that party—was defeated, and Oxford still takes official cognisance only of the dominant male. But in these railroad days, English girls, though not officially recognized, attend lectures with the men; they take the final examinations and receive a certificate of grading; and so they achieve everything except the coveted degree.

The presence of women—students and families—has resulted in a broadening and a normalising of the undergraduate's life. The don, too, has improved: he has taken to marrying; and the possession of a family has made him a marvellously different man from his celibate brother of two centuries ago.

But for the observer of character curiosities all these changes have been for the worse. The eccentric, the recluse, the bachelor monstrosity have pretty nearly disappeared. In the old days, Oxford was a hot bed of curiosities. The social, or rather, non-social conditions all tended to narrowing and repression and one-sidedness. Not that all Oxford celibates were of the thin and weary-and-worn type. The jovial tippler, who passed his nights in the senior common room with much good old port, calling upon his "scout"

for guidance to his rooms, was not an unfamiliar figure. But the railroad has so levelled all, that Oxford life, in becoming healthier and truer, has become more ordinary, and the fantastic types of old are rapidly disappearing. Still, they are yet to be seen,—the thin, querulous bachelor with impossible tailoring and musty gown, stooping it up the High; the bibulous, portly old scholars waddling along jovially, or, gout bitten, limping painfully across the college quad; the child-like bachelor with far-away eyes and gentle, impractical heart, who potters about quietly and abstractedly in a world that has no concerns but Greek verses and the "Schools". But these are like relics of a pre-historic time: Oxford tolerates them with a smile that has in it a pity for the days when such were rife.

We have described Oxford in past and in present; it should now logically be in order for us to set our prophetic eye for the future. Fortunately for the prophet, there is no long search required to find that which will be of signal moment to Americans in Oxford's coming years. In the establishment of the Rhodes Scholarships, Oxford's future has in an important sense become our future. Through this new medium, our universities will be brought into closer relation with the English culture than ever before. Our connection in the past has really been of the very slenderest. When we consider that in the University of Berlin alone there are at present several hundred Americans in yearly residence, while in Oxford the number of American students does not average more than thirty or forty, we can see how greatly the German influence has outweighed the English. And in Cambridge we should find even fewer Americans.

No doubt Oxford herself is to blame for this absence of Americans, for she has made very little effort in the past to accommodate her work to the needs of graduate students. She has concentrated almost entirely upon undergraduate work, and while her success in this, especially in the famous "Greats" school, has been marked indeed, she

has lost a great deal both for her own and for foreign students by her lagging development of a graduate department. The M.A. degree has doubtless been the cause of much of Oxford's sluggishness. This degree is granted simply on the basis of the time that has elapsed after graduation: one need but pay the fees that are necessary in order to remain on the rolls, rest back and *live*, and the degree cannot be escaped. The result is that there has been little incentive to graduate work except for those immediately engaged in the college teaching. But the establishment of the Research degrees in recent years, and especially, two years ago, of the Research doctorates, has begun to supply a needed incentive; yet doubtless no incentive can be wholly successful so long as the Master's degree remains simply a test of the candidate's ability to exist. In fact, up to the present time, the Research degrees have attracted nearly as many American as English students. And it is not too much to say that it has largely been the presence of American graduates in Oxford that has in recent years caused the university to make a serious beginning in the way of systematizing her graduate work. There is no doubt that as Oxford offers increased opportunities, there will be a steady growth in the number of American graduate students in residence. The Research Doctorates — D. Litt. and D.Sc.—should draw many Americans. They are awarded after two years of work done in residence, five years of non-resident work, and the presentation of results in the form of a publication. These degrees have the double advantage of allowing non-resident work and of permitting the student to attain to some maturity before he is required to launch into print.

But this quiet increase of graduate students will be as nothing to the yearly "hurling" of a hundred Rhodes-Americans at Oxford. This new influx will doubtless mean a great deal for Oxford. The Englishman may not always care to admit it, but it is certainly true that the wide-awake young Oxford man is anxious to know how Americans do

things; and with a hundred picked Americans to practice on yearly, he will very soon be coming to see the good in the American way that happens not to be the English way. It has been my experience that the English student is eager to get the points of our governmental and educational systems. There is so much likeness and yet so much difference between us in government, that we have more to offer him than any other nation. And as for education below the university stage, he finds his own country so saddled with difficulties, that he looks to us for light.

There is a danger, of course, that Oxford may approach us too perilously near. Certainly there exists a grave problem for Oxford's future in the question that is now being so seriously debated,—the question whether Oxford is to retain her stringent classical requirements or not. If Oxford yields to us, it must mean a departure from her unbroken classical tradition; must mean that she will no longer hold the unique position that she now has in classical culture, but will enter the swift race away from the old to the goal of the strictly "modern". It will be a real blow to the intellectual welfare of the world if Oxford does thus depart from the lines of her classic tradition. For the classical training that Oxford offers is unique and deeply important in so far as it is above all not purely or mainly a philological training, but a training in insight into the classics as funds of great thought. Greek is studied not simply *as Greek*, but as Plato and Aristotle, as Aeschylus and Thucydides. Nowhere, perhaps, is the study of the classics so consciously and consistently a study of their contents as in Oxford. The classics are philosophy, are history, and politics, and art, and literature for the students. We have here, in fact, the, for modern times, curious condition that undergraduates get their introduction to the great problems of the world almost entirely through the medium of the Greek and Roman views of life. The deep significance of such a training will at once be recognized by those who know the great productions of the Greeks and Romans *in their con-*

tent. It is this kind of training that the world cannot afford to lose, and it is training of this character that ought to be the best "temper" to the modern-minded American youth. If one may venture to express a hope in this matter, it is that Oxford may hold fast by that which has given her character in the past, and which at the present time secures for her a position that is unique and invaluable in the world of thought.

UNIVERSITY RECORD.

VICTOR HENDERSON.

A department of Architecture, with Mr. John Galen Howard as Professor of Architecture and head of the department, was established at the meeting of the Regents on April 14th. For the present the department will be housed in the new stone building erected as a President's House. The favorable auspices under which the new course is organized promise the rise at Berkeley of a School of Architecture of the first rank. Professor Howard brings to his task a professional equipment of the highest order, gained from his American scientific training at the Massachusetts Institute of Technology, his study at the Beaux Arts and his many years of successful practice in New York.

The students of architecture will have the inspiration of instruction from a man of broad training, of wide experience in construction on a large scale and of high artistic ideals. The nearness of the University to San Francisco will give the students of the new department ample opportunity for the inspection of extensive building operations, and besides this they will have valuable practical training in connection with the designing and erection of the buildings already begun or hereafter to rise upon the campus under the direction of Professor Howard as Supervising Architect of the University.

To the Hearst Memorial Mining Building and the new Amphitheatre, already well under way, the California Legislature of 1903 added California Hall, for which a special

appropriation of a quarter of a million dollars was made. This new building will afford much needed relief, for it will be primarily a class-room building, and of class-rooms the supply is now so exceeded by the demand that a number of courses have been crowded off the campus into rented rooms in Stiles Hall.

Professor Howard's plans for this new granite building show an edifice of strong and dignified exterior, classical in tone. Within there will be the administrative offices of the University, a lecture hall seating about eight hundred, and a number of class-rooms of moderate size. Great care has been taken to ensure fireproof construction, and to provide ample corridors, stairways and entrances, and adequate means of ventilation, lighting and heating.

California Hall will stand on the slope west of North Hall and north of the Harmon Gymnasium. Its greatest length will be from twenty feet north of the main central path to ten feet south of the asphalt tennis court near the baseball field. The importance of California Hall to the architectural future of the University is enhanced by the fact that it is to be one of two buildings flanking the future library. That most important and most needed of buildings is designed to stand directly west of North Hall, facing north over the botanical garden.

LEGISLATIVE AIDS.

Including the quarter of a million for California Hall, the California Legislature of 1903 made special appropriations of $287,800 for particular purposes affecting the University. Furthermore it placed in the General Appropriation Bill a grant of $100,000 per annum for University maintenance, in pursuance of purposes expressed by the Legislature of 1901. These sums are in addition to the proceeds of the permanent two-cent tax on each hundred dollars of assessed valuation, which for the coming year may be expected to yield about $260,000. The University's annual income for the next two years, excluding the

$250,000 for California Hall and certain minor special funds, will be about $578,000.

Six thousand dollars was appropriated by the Legislature for improving the grounds about the affiliated college buildings in San Francisco. A new section was added to the Political Code providing for the automatic transfer to the University of lands forfeited to the State for unpaid taxes in all instances in which a claim of the University for an unsatisfied debt rests against the property. The Deficiency Printing Bill provided an additional five thousand dollars for the publications of the Lick Observatory, and an additional five thousand for other University printing.

AGRICULTURAL BILLS.

For various branches of the University's agricultural work other specific appropriations were made. Six thousand dollars a year was provided for Farmers' Institutes, heretofore supported out of the general University fund. Twenty-five hundred dollars a year was granted for the establishment of a Poultry Experiment Station at Petaluma. Land has been selected and experimentation will begin without delay. Professor E. W. Major will direct the studies of poultry foods, and Professor Archibald R. Ward, of the diseases of poultry. Dr. Veranus A. Moore, Professor of Comparative Pathology, Bacteriology, and Meat Inspection in New York State Veterinary College and Professor of Bacteriology in the medical department of Cornell University, will spend the summer in Berkeley to advance the University's studies in the diseases of poultry, cattle, and swine. Dr. Moore was formerly chief of the Bureau of Animal Industry of the United States Department of Agriculture. He is a first authority in his subject. Three thousand dollars was appropriated for viticultural investigations. Professor E. H. Twight, in coöperation with a number of vineyardists near Fresno and in the Napa valley will undertake experiments in the adaptation of different vine species to varying conditions of soil and climate, with special reference to the development of resis-

tant stocks. Studies will be made in the treatment of vine diseases, in methods of grafting and propagation, of vinification and distillation, and in the utilization of by-products.

The inspection and analysis of all commercial fertilizers sold in California was delegated by the Legislature to the Director of the Agricultural Experiment Station of the University. Eighteen hundred dollars was appropriated for this work. A fee of fifty dollars will be required by the State of every manufacturer or dealer who registers a commercial fertilizer. It is believed by the agricultural interests of California that this University inspection will provide adequate protection for the farmer against any attempt to sell a harmful or ineffective fertilizer.

Among the bills which failed of passage or of approval were measures providing funds for a short course in navigation for practical seafarers, for the establishment of a dairy school, for a school of forestry and for the appointment of a plant pathologist.

PLANT PATHOLOGY.

That a chair in plant pathology should be established, however, and that provision should be made for systematic investigation of plant diseases, seemed to the California Fruit-Canners' Association of such pressing importance that an offer was made by the organization to pay from its own funds the necessary expense. In consequence, Dr. Ralph E. Smith was called from the Massachusetts Agricultural College at Amherst to the newly-created position of Assistant Professor of Plant Pathology and Plant Pathologist to the Agricultural Experiment Station. Professor Smith came at once to California. The problem which he has first attacked is that of asparagus rust. The asparagus industry has grown to great proportions in California, no less than 300,000 cases of canned asparagus, of a total value of more than $1,200,000, being shipped out of the State annually. The little-understood disease has proved a most serious menace to the future of the industry.

Professor Smith has carried on investigations as to asparagus rust since 1896, and has published many papers upon the subject. He graduated from the Massachusetts Agricultural College in 1894. He was for two years a student in Germany, working under Hartig and von Tuboeuf. In 1896 he returned to America to become Assistant Botanist and Mycologist at Amherst. Ever since that time he has done a large share of the station work in plant diseases, paying particular attention to leaf diseases of the pear, quince and apple, to the diseases of green-house market crops, flowering plants and the melons, and to the "soft spot" of oranges and other citrus fruits. His work in California will be in close coöperation with practical horticulturists and farmers.

Five members of the staff of the Agricultural Department were promoted to assistant professorships at the meeting of the Regents on April 14th. The growing diversity of the activities of the department is illustrated by the interests which these new assistant professorships in purpose and title represent,—in the case of Mr. E. W. Major, Animal Industries; of Mr. G. E. Colby, '80, Agricultural Chemistry; of Dr. Archibald R. Ward, Veterinary Science and Bacteriology; of Mr. E. H. Twight, Viticulture and Fermentative Industries; of Mr. A. V. Stubenrauch, '99, Horticulture. Professor Stubenrauch is also Superintendent of the agricultural experiment sub-stations.

FACULTY CHANGES.

Dr. Alexis F. Lange was made Professor of English and Scandinavian Philology at the same meeting of April 14, and a number of other promotions and new appointments were made. Mr. Martin C. Flaherty, '96, was appointed Assistant Professor of Forensics: Mr. Benjamin P. Kurtz, '01, Instructor in English; and Mr. Walter Morris Hart, formerly a member of the English department, and for the past three years a graduate student at Harvard, was recalled to an instructorship.

Dr. Frank Sidney Wrinch, B.A., Toronto, 1896, and M.A., '97, Ph.D., Würzburg, '02, a former student under Professor Wundt at Leipzig, and now assistant to Professor J. Mark Baldwin at Princeton, was appointed Instructor in Experimental Psychology. Dr. Ernest Carroll Moore was raised to an Assistant Professorship in Education, and Mr. W. Scott Thomas, formerly Principal of the Merced High School, appointed Assistant Professor of Education and Examiner of Schools.

In the Department of History, Dr. Gaillard T. Lapsley and Dr. W. S. Ferguson were promoted to be Assistant Professors, and Mr. Jerome Barker Landfield was appointed Instructor. Professor Lapsley, however, has resigned to go to the University of Pennsylvania as Assistant Professor of History. He leaves California with reluctance, and to the great regret of the University; his decision being determined wholly by personal considerations. Mr. George H. Boke, '94, was promoted to be Assistant Professor of Jurisprudence; Dr. J. T. Allen, '96, Assistant Professor of Greek and Classical Archaeology; Dr. Clifton Price, Assistant Professor of Latin; Mr. Marius J. Spinello, Instructor in Italian and French; Dr. Charles A. Noble, '89, Assistant Professor of Mathematics; Dr. Percival Lewis, Associate Professor of Physics; Dr. W. C. Blasdale, '92, Assistant Professor of Chemistry; Dr. A. S. Eakle, Assistant Professor of Mineralogy; Mr. Joseph N. LeConte, '91, Assistant Professor of Mechanical Engineering; Mr. J. H. Dye, Assistant Professor of Civil Engineering; and Dr. Martin H. Fischer, Assistant Professor of Physiology.

Dr. George F. Reinhardt, B.S., '97, M.D., '00, was made Medical Examiner. Mr. Garrick M. Borden, A.B., Cornell, '99, A.M., '02, was appointed Secretary for University Extension and Staff Lecturer. Mr. Robert Sibley, '03, Editor of the California Journal of Technology, and one of the Commencement speakers of this year, was appointed Assistant in Electrical Engineering.

Dr. Russell Tracy Crawford, '97, Ph.D., '01, resigned his position in the Examining Board of the United States Civil Service Commission in March to return to the University as Instructor in Practical Astronomy. He succeeded Dr. Harold K. Palmer, who resigned to go to Chili with the D. O. Mills Expedition from the Lick Observatory.

Mr. Loren E. Hunt, '93, who a year ago resigned his instructorship in Civil Engineering to share in the construction work of the engineering offices of San Francisco, has returned to Berkeley as Engineer in charge of the Forestry Experiment Station which is to be permanently maintained at the University by the United States Bureau of Forestry. He will undertake extensive researches as to the properties of the timbers of the Pacific Coast.

Professor Elmer E. Brown declined a call to New York University as Dean of the School of Pedagogy, as a year ago he declined an offer of a professorship in the University of Michigan.

Dr. William Pepperrell Montague has accepted a call to the Department of Philosophy of Columbia University, and has resigned his position as Instructor in Logic and the Theory of Knowledge.

Mr. Bernard Maybeck has resigned his instructorship in Architecture to engage in private practice. The fine interior of Hearst Hall and the Faculty Club in the cañon will stand as constant reminders of his service to the University.

While on leave of absence during the coming year, Professor W. A. Setchell will continue in Europe and Asia the algological studies the earlier results of which have been embodied in the "Algae of Northwestern America", just published by Professor Setchell and Mr. Nathaniel Lyon Gardner, his assistant, as a part of the University's Publications in Botany. This volume of two hundred and fifty pages is the first attempt at a complete description of the seaweeds and fresh-water algae of the Boreal Pacific region of North America—from Cape Flattery, at the extreme

north-western corner of Washington, northward along the coast to the region of Kotzebue Sound, on the Aretic coast of Alaska. Professor Setchell will spend the year in personal examination of collections of algae of importance at European universities and museums, and in field work on the coasts of Java and Ceylon.

Other members of the faculty who will be absent during the coming year are Professor Thomas R. Bacon, Professor Fletcher B. Dresslar, Professor Edmond O'Neill, who will go to Berlin to represent the University and also the United States Government at the Fifth International Congress of Applied Chemistry, and who will remain abroad until January, and Dr. E. J. Wilczynski, who will be in Europe as Research Assistant in Mathematics of the Carnegie Institution. Similar appointments on the Carnegie foundation have recently been given to George D. Louderback, A.B., '96, Ph.D., '99, and to Frank E. Ross, B.S., '96, Ph.D. Dr. Louderback will undertake geological researches in the field in Nevada and California, and in Professor Lawson's laboratory, and Dr. Ross will aid Professor Simon Newcomb in study of the moon.

A loss to the University deeply deplored was the death on April 1st of Ralph Erwin Gibbs, B.S., '98, M.S., '00, in Botany. Mr. Gibbs for some time was a member of the library staff, and later Reader in English. For some years he carried on graduate study under Professor Gayley's direction. During the months immediately preceding his death he had given his time wholly to literary endeavor, in which there seemed to open before him a successful career.

The appointments of eight Regents were confirmed by the Legislature during its recent session. These Regents, with the time of expiration of the term of each, are: Guy C. Earl, 1918; Isaias W. Hellman, 1918; Dr. C. N. Ellinwood, 1908; Garrett W. McEnerney, 1904; Charles S. Wheeler, 1906; J. W. McKinley, 1906; John A. Britton, 1914; Frederick W. Dohrmann, 1904; and Rev. Peter C. Yorke, 1912.

CHARTER DAY.

Charter Day—the forty-third anniversary of the founding of the University—was celebrated on March twenty-third with Governor George C. Pardee, '79, and President David Starr Jordan of Leland Stanford Junior University as the speakers. The addresses of the day appear elsewhere in this number.

At the University Meeting of February 27th, the speakers were Mr. Franklin K. Lane, '86, City Attorney of San Francisco, Professor Adrian Hofmeyr of the College of South Africa, and Professor Isaac Flagg, who read an original poem. On March 13th the speakers were Regent Peter C. Yorke and President William F. Slocum of Colorado College, and on April 10th, President J. E. Stubbs of the University of Nevada, Senator G. Russell Lukens, '89, and Assemblyman William H. Waste, '91.

Among recent lectures of note have been addresses by Dr. Adrian Hofmeyr, March 13th, on "The Kaffir—his Religion and his Philosophy;" by Captain Richmond Pearson Hobson, April 8th, "The Navy and the Nation"—the University owes to the local chapter of the Kappa Alpha fraternity the opportunity of hearing Captain Hobson; by Judge Henry C. Ide of the United States Philippine Commission, April 9th, on "Philippine Conditions;" and by Mr. John Swett, formerly State Superintendent of Public Instruction, April 10th.

A song recital of typical examples of modern French romance was given at Hearst Hall, March 17th, through the generosity of Prince Poniatowski, by Monsieur Numa Blès and Monsieur Lucien Boyer of Paris, themselves the composers of the most of the songs rendered. "The Knight of the Burning Pestle," Beaumont and Fletcher's famous comedy, was presented by the English Club of Stanford University in the Harmon Gymnasium before a large audience on March 28th.

The Sunday afternoon recitals to which Mrs. Hearst has invited the members of the University at intervals through-

out the winter, have furnished musical opportunities of a most unusual character. These recitals have been under the direction of Mr. Robert Tolmie. At a number of the concerts music has been rendered by a string quartet composed of Mr. Wenzel Kopta, Mr. John Josephs, Mr. Charles Heinsen, and Mr. Theodore Mansfeldt; and there have many different soloists. On one afternoon of particular interest the program consisted of a recital of his own compositions for the piano by Mr. Edward McDowell, Professor of Music in Columbia University, and the singing of a number of Mr. McDowell's lyrics by Mrs. Blanchard.

THE RHODES SCHOLARSHIPS.

Principal George R. Parkin of Upper Canada College, the American representative of the Rhodes Trustees, spoke on March 9th to the men of the University on Cecil Rhodes and his bequest. A conference as to the method of selection of the Rhodes Scholars at Oxford was held at the University on the same day by representatives of California, Nevada, Arizona and Utah. The conferees were Principal Parkin, President Wheeler, President Jordan, President Stubbs of the University of Nevada, President F. Yale Adams of the University of Arizona and Professor Byron Cummings of the University of Utah. It was the decision of the conferees to recommend to the Rhodes Trustees that the Rhodes Scholars from the States and Territories represented must have completed the sophomore year in a university or college of standards equivalent to those of the State University in each commonwealth; that candidates be residents or citizens of the State or students in an institution within the State; and that twenty-five years be the extreme limit of age. The choice of students considerably younger was strongly recommended. The candidate must be prepared to pass the Oxford admission examination known as Responsions. This would imply, ordinarily, that he must have continued the study of Greek throughout his sophomore year. It was recommended that only unmarried

men be eligible, and that they must be in perfect health and of good physique.

At a subsequent conference, to which all the collegiate institutions of California were invited to send representatives, the choice of the Rhodes Scholars from California was delegated to a committee consisting of President Wheeler, representing the University of California, President Jordan, representing Stanford, and Professor E. C. Norton of Pomona College, representing the smaller colleges of California. It has been recommended to the Rhodes Trustees that the scholars from California should be selected in rotation from the University of California, from Stanford, and from the smaller colleges considered as a group, the distribution of scholarships being in proportion to the number of students of Greek in each of these three groups.

SUMMER SESSION.

To the faculty of the Summer Session for 1903 have been appointed, in addition to Professors Palmer and Hart of Harvard, Professor Monroe of Columbia and Professor Bennett of Cornell, a number of men from other universities,—among them George Rice Carpenter, Professor of Rhetoric and English Composition in Columbia University; Benjamin Parsons Bourland, Professor of Romance Languages in Adelbert College of Western Reserve University; Robert Herrick, the novelist, Associate Professor of English in the University of Chicago, James Rowland Angell, Associate Professor of Experimental Psychology at Chicago and Charles Palache, Assistant Professor of Mineralogy in Harvard University.

Mr. Gifford Pinchot, Forester of the United States Department of Agriculture, will give a number of lectures during the Summer Session on the problems of forestry. Three lectures each on problems of school practice will be given by six California school administrators: Mr. Thomas J. Kirk, State Superintendent of Public Instruction; Mr. Samuel T. Black, President of the State Normal School at

San Diego; Mr. J. P. Greeley, Superintendent of Schools of Orange County; Mr. James A. Foshay, Superintendent of Schools of Los Angeles; Mr. John W. Linscott, Superintendent of Schools of Santa Cruz County and Mr. John W. McClymonds, Superintendent of Schools of Oakland. Professor Leon J. Richardson is again to be Dean.

DENTAL DEPARTMENT.

The Dental Department will require a full high school course for admission, beginning with the fall of 1903. This places the entrance requirements of the Dental School as high as those of any other similar institution in the United States.

LICK OBSERVATORY.

The annual Lick lectures before the Berkeley Astronomical Department were as follows: Astronomer R. H. Tucker, April 7th, "The Work of a Modern Observatory," April 9th, "Some of the Older Observatories;" Astronomer W. J. Hussey, April 14th, "Residuals," and April 16th, "Varieties of Double Stars;" Assistant Astronomer R. G. Aitken, April 21st, "Micrometer Work in Theory and Practice," and April 23rd, "Nebulæ and the Nebular Theory."

The Lick Observatory Bulletins which appear at frequent intervals have been found a valuable medium for the immediate announcement of results attained at Mount Hamilton. In recent numbers are recorded the discovery and measurement of one hundred and seventeen new double stars; observations by Astronomer Aitken of the comet discovered by M. Giacobini at Nice on January 20th; the discovery by Dr. H. M. Reese of four stars whose velocities in the line of sight are variable and of a star in Orion of a great radial velocity; a determination by a new method of the binary system Delta Equulei by Astronomer William J. Hussey, and an investigation by Astronomer C. D. Perrine as to the physical character of the nebulosity surrounding the new star in Perseus.

GIFTS TO THE UNIVERSITY.

An anonymous friend has given $2,500 for the purchase of books on physiology. Another friend of the University has given $1,000 for the furtherance of Professor Merriam's investigations as to the marine reptilian fossils of California and Oregon.

Mrs. W. H. L. Barnes has presented to the University a number of rare old law books, a cherished part of the library of her husband, the late Regent. Mrs. Walsworth, who some years ago made a loan of a painting of Mount Shasta, by Butman, has now presented the landscape to the University. Mr. Arthur Eloesser has given to the Library some sixty volumes of Hebrew and Oriental works, in accordance with the wish of his father, the late Leo Eloesser. Mr. J. H. Carmany has presented an eighty-page manuscript on "The Vocabulary of the Mescalero Apache Language," by the well-known Indian fighter, Col. John C. Cremony, author of "Life Among the Apaches," an authoritative record of Apache customs.

The alumni on Charter Day presented to the University a check for one thousand dollars. This is the second thousand of their contributions toward the fund for the erection of an alumni hall. A few among the alumni have raised a fund to make it possible for the Rev. Albert Franklin Lyle, A.B., 1864, the earliest living graduate of the University, to return to Berkeley as Chaplain for the Commencement exercises.

ANTHROPOLOGICAL COLLECTIONS.

The rapid growth of the anthropological collections stored in the temporary museum warehouse is shown by the fact that some three hundred and thirty packing-cases of anthropological objects have been received within the past two years. Of these cases, one hundred and eighty contain Egyptian antiquities discovered or purchased by the Hearst Expedition under the direction of Dr. George A. Reisner, and a hundred and seven cases Greek, Roman and

classical African antiquities purchased for the University at Mrs. Hearst's instance by Dr. Alfred Emerson. Already the capacity of the building is beginning to be taxed.

Such instruction as is offered in anthropology other than through lectures for the general public has been primarily in North American ethnology. Twenty-nine students are at present enrolled in Mr. Pliny E. Goddard's course in "The Tribes of Northwestern California," fifteen in Dr. Alfred L. Kroeber's course in "The Indians of California," three students have taken Dr. Kroeber's course in North American Ethnology, and one has received special technical training in North American aboriginal languages. Forty-two individuals are receiving instruction in these courses.

NATIVE AMERICAN LANGUAGES.

The first reconnoissance has been completed for the linguistic survey of California undertaken by Dr. Kroeber. A joint paper by Dr. Kroeber and Dr. Dixon of Harvard now in type records the results of this exploration.

The corresponding ethnological reconnoissance has not yet been ended. The ground has been covered, with trifling exceptions, as far south as the upper end of the San Joaquin basin, the last portion of the work being done through a Yokuts Indian who came to the University in February. The region south of the Tehachapi still needs much field work as a preliminary to adequate ethnological investigation.

Three thousand mechanical records of the verb forms of the Hupa language were made on the Rousselot apparatus in December and January by Mr. Goddard, with the help of Julius Marshall, a Hupa boy. Mr. Goddard selected seventy-five tracings, representing the different vowel sounds of the Hupa language, for enlargement by micro-photography to the size required for their study by the mechanical curve-analyser. Photographs were taken also of a false palate, fitted to the mouth of the Hupa boy, by means of which records were made of the different consonants of the Hupa

language. Mr. Goddard was able to extend greatly his list of Hupa verbs through Marshall's aid. During a stay at Hupa, in Humboldt county, Mr. Goddard went through all of his Hupa texts with an Indian interpreter, making sure of the correctness of the text and clarifying the translation. This process was repeated with a well-educated Indian girl. Texts were obtained of a few myths and medicine formulas, and thirty-five additional Hupa songs were recorded on the phonograph.

The Department of Anthropology is about to publish two papers by Mr. Goddard, one dealing with the phonology of the Hupa language, and the other with its morphology.

Dr. Max Uhle's report on his excavations in the valley of Trujillo, about to be printed by the University, will contain some four hundred pages of text, maps, and a number of reproductions of Peruvian antiquities gathered.

Five thousand dollars has been provided through the generosity of Mrs. William H. Crocker and Mrs. Whitelaw Reid for the prosecution of archæological research in Mexico. Mrs. Zelia Nuttall is now in Mexico, engaged in the preparation for publication of an ancient map of the old Aztec capital and its environs. Its decipherment promises to yield much information of historical interest.

RESEARCH IN PHYSIOLOGY.

The first fruits of the new research chair of Physiology have come from the University Press as a paper by Professor Jacques Loeb "On a Method by which the Eggs of a Sea-urchin *(Strongylocentrotus purpuratus)* can be Fertilized with the Sperm of a Starfish *(Asterias ochracea.)*"

Professor Loeb here announces that he has succeeded in hybridizing unrelated species, an experiment success in which had never before been attained. The method employed was to effect a slight change in the chemical constitution of the seawater.

"These facts may have bearing upon certain phenomena of infection and immunity," says Dr. Loeb in his

paper. "One is almost tempted to say that while in sea-water the eggs of *Strongylocentrotus purpuratus* are immune against the sperm of the starfish, in the artificial solutions they become almost or completely immune against the sperm of their own species, and at the same time lose their immunity for the sperm of the starfish. It is a rather remarkable fact that surprisingly small though very definite quantities of certain constituents of the seawater suffice to reverse the character of the immunity."

This paper by Professor Loeb inaugurates a Series in Physiology which is to form part of the University of California Publications, already containing series in astronomy, education, geology, agriculture, botany, zoölogy, Graeco-Roman archaeology, and Egyptology.

University Chronicle

VOL. VI SEPTEMBER, 1903 No. 2

ADDRESS OF PRESIDENT ROOSEVELT AT COMMENCEMENT EXERCISES OF THE UNIVERSITY OF CALIFORNIA, MAY 14, 1903.

President Wheeler; Fellow-Members of the University:

Last night in speaking to one of my new friends in California he told me that he thought enough had been said to me about the fruits and flowers; that enough had been said to me about California being an Eden, and that he wished I would pay some attention to Adam as well. Much though I have been interested in the wonderful physical beauty of this wonderful State, I have been infinitely more interested in its citizenship, and perhaps most in its citizenship in the making.

When I come to the University of California and am greeted by its President I am greeted by an old and valued friend, a friend whom I have not merely known socially but upon whom while I was Governor of New York I leaned often for advice and assistance in the problems with which I had to deal. And when he accepted your offer I grudged him to you; and it was not until I came here, not until I have seen you, that I have been fully reconciled to the loss. But now I am, for I can conceive of no happier life for any man to lead to whom life means what it should mean, than the life of the President of this great University.

This same friend last night suggested to me a thought that I intend to work out in speaking to you today. We

were talking over the University of California and from that we spoke of the general educational system of our country. Facts tend to become commonplace and we tend to lose sight of their importance when once they become ingrained into the life of the nation. Although we talk a good deal about what the widespread education of this country means, I question if many of us deeply consider its meaning. From the lowest grade of the public school to the highest form of university training, education in this country is at the disposal of every man, every woman, who chooses to work for and obtain it. The state has done much, very much; witness this University. Private benefaction has done much, very much; witness also this University. And each one of us who has obtained an education has obtained something for which he or she has not personally paid. No matter what the school, what the university, every American who has a school training, a university training, has obtained something given to him outright by the state, or given to him by those dead or those living who were able to make provision for that training because of the protection of the state, because of existence within its borders. Each one of us then who has an education, school or college, has obtained something from the community at large for which he or she has not paid, and no self-respecting man or woman is content to rest permanently under such an obligation. Where the state has bestowed education the man who accepts it must be content to accept it merely as a charity unless he returns to the state in full in the shape of good citizenship. I do not ask of you, men and women here today, good citizenship as a favor to the state. I demand it of you as a right, and hold you recreant to your duty if you fail to give it.

Here you are in this University, in this State, with its wonderful climate which is going to permit to people of a northern stock for the first time in the history of that northern stock to gain education under physical circumstances, under physical surroundings, somewhat akin to

those which surrounded the early Greeks. Here you have all those advantages and you are not to be excused if you do not show in tangible fashion your appreciation of them and your power to give practical effect to that appreciation. From all our citizens we have a right to expect good citizenship; but most of all from those who have received most, most of all from those who have had the training of body, of mind, of soul, which comes from association in and with a great university. To those to whom much has been given we have Biblical authority to expect and demand much in return; and the most that can be given to any man is education. I expect and demand in the name of the nation much more from you who have had training of the mind than from those of mere wealth—to that man much has been given too and much will be expected from him, and ought to be—but not as much as from you because your possession is more valuable than his. If you envy him I think poorly of you. Envy is merely the meanest form of admiration, and a man who envies another admits thereby his own inferiority. We have a right to expect from the college-bred man, the college-bred woman, a proper sense of proportion, a proper sense of perspective, which will enable him or her to see things in their right relation one to another, and when thus seen while wealth will have a proper place, a just place, as an instrument for achieving happiness and power, for conferring happiness and power, it will not stand as high as much else in our national life. I ask you to take that not as a conventional statement from the university platform, but to test it by thinking of the men whom you admire in our past history and seeing what are the qualities which have made you admire them, what are the services they have rendered. For as President Wheeler said today it is true now as it ever has been true that the greatest good fortune, the greatest honor, that can befall any man is that he shall serve, that he shall serve the nation, serve his people, serve mankind; and looking back in history the names that come up before us, the names to which we turn,

the names of the men of our own people which stand as shining honor marks in our annals, the names of those men typifying qualities which rightly we should hold in reverence, are the names of the statesmen, of the soldiers, of the poets, of the architects of our material prosperity also,—but only also.

Of recent years I have been thrown in contact with a number of college graduates doing good service to the country and as I wish to make it perfectly evident what I mean by the kind of service which I should hope to have from you and which it seems to me worth while to render, I want to say just a word about two college graduates who have during the last five years rendered, and are now rendering, such services: Governor Taft in the Philippines, and Brigadier-General Leonard Wood, lately Governor of Cuba. When we acquired the Philippines and took possession for the time being of Cuba to train its people in citizenship, we assumed heavy responsibilities; so heavy that some very excellent people thought we ought to shirk them. I hold that a great and masterful people forfeits its title to greatness if it shirks any work because that work is difficult and responsible. The difficulty and responsibility impose upon us the high duty of doing the work well, but they in no way excuse us for refusing to do it. We had to do the work and the question came of the choice of instruments in doing it. The most important and most difficult task after the establishment of order by the army in the Philippines was the establishment of civil government therein; and second only in importance to that came the administration of Cuba, during the three years and over that elapsed before we were able to turn its government over to its own people and start it as a free republic. When tasks are all-important the most important factor in doing them right is the choice of the agents; and among the many debts of gratitude which this nation owes to President McKinley no debt is greater than the debt we owe him for the choice of his instruments, such a choice as that of Taft,

such a choice as that of Wood. We sent Taft to the Philippines; we sent Wood to Cuba; both of them, as tested by the standard of our commercial life, poor men; each man with little more than his salary to keep himself and his family; each man to handle millions upon millions of dollars, to have the power by mere conniving at what was improper to acquire untold wealth—and sent them knowing that we did not ever have to consider whether such opportunities would be temptations toward them; sent them knowing that they had the ideals of the American college-bred man, and that therefore we did not have to consider the chance of a possible temptation appealing to them.

Taft has gone to the Philippines to stay there; not only forfeiting thereby the certainty of brilliant rise in his profession on the bench or at the bar here if he had stayed, but at imminent risk to his own health, because he felt that his duty as an American made him go; that as President McKinley told me of him, he had been drafted into the service of the country and he could not honorably refuse. We have seen in consequence the Philippine Islands administered by the American official who is at the head of the government and by his colleagues in the interest primarily of their people, and seeking to obtain for the United States, for the dominant race, that spent its blood and its treasure in making firm and stable the government of those Islands—seeking to obtain for that dominant race only the reward that comes from the consciousness of duty well done. Under Taft, by and through his efforts, not only have peace and material well-being come to those Islands to a degree never before known in their recorded history, and to a degree infinitely greater than had ever been dreamed possible by those who knew them best, but more than that, a greater measure of self-government has been given to them than has now come to any other Asiatic people under alien rule, than to any other Asiatic people under their own rulers, save Japan alone. That is an achievement of the past five years which I hold to be absolutely unparalleled in history;

and when the debit and credit side of our national life is finally made up a long stroke shall be put to the credit side of what has been done in the Philippines under Taft and his associates.

In the same way Leonard Wood worked in Cuba. Put down there to do an absolutely new task, to take a people of a different race, a different speech, a different creed, a people just emerging from the hideous welter of a cruel war beyond what we in this fortunate country can readily conceive—to take a people down in the depths of poverty, in the depths of misery, just recovering from suffering which makes one shudder to think of, a people untrained utterly and absolutely in self-government and fit them for it; and he did it. For three years he worked. He established a school system as good as the best that we have in any of our states. He cleaned cities which had never been cleaned in their existence before. He secured absolute safety for life and property. He did the kind of governmental work which should be the undying honor of our people forever. And he came home to what? He came home to be thanked by a few, to be attacked by others—not to their credit—and to have as his real reward the sense that though his work had been done at pecuniary sacrifice to him, that though the demands upon him had been such as to eat into his private means, yet he had willingly and well done his duty as an American citizen and reflected honor, fresh honor, upon the uniform of the United States army.

I have chosen Taft and Wood simply as examples, simply as instances of what other men by the hundred have done, Americans who have graduated from no college, Americans who have graduated from all our different colleges, and especially by practically all those Americans who have graduated from the two great typical American institutions of learning—West Point and Annapolis. Taft and Wood and their fellows are spending or have spent the best years of their prime in doing a work which means to

them pecuniary loss, at the best a bare livelihood while they are doing it, and are doing it gladly because they realize the truth that the highest privilege that can be given to any man is the privilege of serving his country, his fellow Americans. As I am speaking to an audience with proper ideals, when I say that Taft and Wood have done all this service to their pecuniary loss, I am holding them up not for pity—for envy. The least mean thought of envy is the envy of the man who does such work as they do. Everyone here, every man, every woman, should feel it incumbent upon him or her to welcome with joy the chance to render service to the country, service to our people at large, and to accept the rendering of the service as in itself ample repayment therefor. Do not misunderstand me. The average man, the average woman, must earn his or her living in one way or another, and I most emphatically do not advise anyone to decline to do the humdrum, every-day duties, because there may come a chance for the display of heroism. Let me just tell you one anecdote—then I am through. When I raised my regiment prior to going to Cuba, we had recruits from every portion of the country in it, some of them without a very clear idea of what was ahead of them. I had one young man, full of enthusiasm, who about the third day came to me and said: "Colonel, I came down here to fight for my country; they have treated me like a serf; they have put me to burying a dead horse." At that moment his captain, who was a large man from New Mexico and not wholly sympathetic, came up and explained to him that he would go right on burying that dead horse and that the next task ahead of him was digging kitchen sinks; and if he did all that well we would attend to the hero business later.

I ask of you the straightforward, earnest performance of duty in all the little things that come up day by day in business, in domestic life, in every way, and then when the opportunity comes if you have thus done your duty in the lesser things, I know you will rise level to the heroic needs.

OPENING ADDRESS.*

Benj. Ide Wheeler.

As we stand here at the opening of another year it is properly of interest to review the more important changes which distinguish the University of today from that of a year ago. An addition has been made to the University Library Building which nearly doubles its book-storing capacity and provides five good seminary rooms. During the year we have been able to expend nearly $35,000 for the purchase of new books and periodicals, an amount about ten times that which was available four years ago for the same purpose. One-half of this money, in round numbers, was made up of private gifts. Of these the chief are that of Mr. Claus Spreckels for a library of History and Political Science, and those of Mrs. William H. Crocker for the Departments of Physiology and of Mediaeval History.

An enlargement of the Chemical Laboratory has among other things provided room for the new work in Physical Chemistry under charge of Dr. Cottrell, who joined our force in January last. The equipment of the laboratory has also been considerably increased.

The new Faculty Club House has provided a much appreciated meeting-place for the members of the instructing force and sensibly relieved the congestion, and we hope improved the digestion, in the rooms of the Dining Associa-

*Address delivered by President Wheeler at the opening University Meeting of the academic year, August 17, 1903.

tion. The two institutions are still served from a common kitchen in which a fine great range, the gift of Mrs. Hearst, holds the seat of honor.

The women of the University have now a meeting place and club house in the admirably equipped Hearst Hall, the Faculty have theirs in the Faculty Club House; the next thing should be a place of assemblage and rendezvous for the men. There is at present no place where a man can eat his lunch or leave his coat and books, or sit down to read in an interim hour on a rainy day, no place the men can call their own, no place where the seniors can meet for a sociable singing on a chilly night.

Hard by on the borders of the Hillegass Tract has been erected through the generosity of Mr. Rudolph Spreckels the new Physiological Laboratory, finely equipped by Mr. Spreckels and Dr. Herzstein and constituting in space, arrangement and outfit the most practically serviceable physiological laboratory in the country and perhaps in the world. The best part of its equipment is created by the presence of Professor Jacques Loeb and his corps of five trained aides. The building will be dedicated with an address by Professor Ostwald of Leipzig.

The Mining Building which Mrs. Hearst is building in memory of her husband for the use of the University is now rising rapidly after a long halt occasioned by the famine in steel, and promises now to be ready for occupancy one year from this time. We shall then have a Mining Building with which none anywhere will assume to vie.

The new Theatre is fast approaching completion. It will be a structure as unique in design as it will be uniquely beautiful and directly useful. On the 24th of September it will be dedicated, and the exercises of dedication will be graced by the presentation of the most graceful of the extant products of the old Greek comic stage, the immortal "Birds" of Aristophanes. We expect the giver of the building, Mr. William R. Hearst, to be present on that occasion.

Through the generosity of our State the sum of $250,000

has been provided for a building — we commonly speak of it as California Hall — the foundations of which are shortly to be laid in the open campus west of North Hall and south of the enclosed tennis court. The plans are now nearly completed.

Of the new fields of study opened with this year the most significant is the Department of Architecture with Professor John Galen Howard at its head.

The Department of Agriculture is strengthened by the addition of four new positions, among them, that of Assistant Professor R. E. Smith, Plant Pathologist, and of Professor Jaffa, who returns from his year of study abroad.

A readjustment of the force in Civil Engineering which it is expected will result in greatly strengthening that department brings to us Associate Professor Derleth from the University of Colorado (earlier of Columbia), and Assistant Professor Prouty, four years ago member of the department and since then engaged in practical railroad work.

A change in the method of school examination is signalized by the appointment of Dr. Scott Thomas as Examiner of Schools. In his capacity as Assistant Professor of Education he will in the second half-year conduct classes at the University in connection with the Department of Education.

We welcome back to his chair in History Professor Bernard Moses after three years of eminent public service as Commissioner to the Philippine Islands. At the next University Meeting he will have his message to present to us.

Professors Clapp and Haskell and Senger return from their year's leave of absence, which has been spent in interesting experiences and enlivening studies in Europe, and Professor Jones returns from a half-year's absence. We give them all our cordial welcome home.

Dr. Hart, after three years study at Harvard, returns to the Department of English and Professor Rieber, who comes

this year to our Department of Philosophy, is really one of our own returning home, and so it is to them too, Welcome home!

The Department of University Extension, if it prove in future years as successful as it has been in Professor Stephens's hands the past year, will require a constant increase in its force of lecturers. This year one regular lecturer has been added in the person of Mr. G. M. Borden, who will act also as Secretary of the Department.

I am sure the teaching force and the equipment of the University were never in better condition to meet the work of a year; are you, students — fellow-students — are you ready for your part; are you ready to join with us in making this the best year of all the years, the best for the upbuilding of womanhood and manhood in yourselves, the best for the upbuilding of our beloved state and the establishment of truth among men?—joined hand in hand we can do all things, sundered we beat the air.

If you should have opportunity to read a recent book entitled, "A Self-made Merchant's Letters to his Son," you will find therein much good counsel applicable to real life, and you can well afford to take to heart the merchant's words to his son as he is entering college: "You'll find that education's about the only thing lying around here loose in this world, and that it's about the only thing a fellow can have as much of as he's willing to haul away. Everything else is screwed down tight and the screw-driver lost." This says in other words that at a university you get what you take — not what is forced upon you — not what forces itself upon you. What is forced upon you and crammed into you will not digest — and the last state of that man shall be worse than the first. If you sit around waiting for the good influences to soak in through the pores you will leave here only feebler and lazier than you came. If you drift along with the crowd, and do what other people do and what other people tell you to do and what seems in general the proper thing to do, you will either be

a nonentity from beginning to end, or perhaps enjoy a certain fictitious popularity at the start which will ripen into contempt at the end. You are now at an age, you are now at a place, where you must do for yourselves. No one can afford to order his life according either to criticism or compliment. Only this, however, when the former rises into abuse, you know of a surety you have been doing your duty, when the latter rises into flattery, you know you are in danger. You may ask advice and listen to it, but after you have assembled the data, you must decide for yourself; you *must*, if you are going to be anybody, if you are going to be an anybody with character. Every man of decided success in life will tell you that in this or that emergency of his life out of which has come for him the greatest achievement, he has decided alone and for himself in the face of tradition, of ease, and of commonplace advice. And here I am not for a moment advising you to spurn advice, but on the contrary to hear it as for your lives, and to apply it in full consciousness that the responsibility is your own.

These general considerations have now at last brought me to my text: the university is a school of character. All the various theories of it conspire in this definition of it; all the varied personal experiences of its workings and effects conspire in this description of it.

It deals with each individual as a living organism. It undertakes to secure for a plant the conditions of healthy growth, not to paint leaves and flowers on a bundle of fagots. Whatever permanent good comes of its influence will come out of the individual himself. Varnish and veneer will crack and peel in the heat of the first stress.

It addresses itself to the good there is in a man and tries to bring that out into control over the bad there is in him, to develop the implicit good into prominence over the implicit bad, the implicit spiritual over the implicit bestial, the implicit reasonable over the implicit mechanical.

It is as an inspirer and guide that the university chiefly

acts in the development of character. It is no purveyor of information. Information does not make character. Knowledge of mechanics and of the strength of materials only makes a burglar a more dangerous member of society. The typical form of university study is represented in the work of the laboratory and the seminary when pupil and teacher study together, the pupil receiving from the teacher only the method of the work and the inspiration thereto. The spirit underlying the class-room work must be the same. So far as any sound result is to come from it, it must and will be the same, for all that counts is what the pupil by actual volition himself reaches for and takes.

The work of the class-room and laboratory alike is the unfolding of truth, and truth is always new truth each time it is apprehended by each living mind. Here is a condition where date of publication and questions of priority make no matter. For each man there is the outpost of the known and there he must stand, alert to see, ready to push on, sane to judge of what he sees. The liberating and uplifting power of the truth in each man's life rests in his attitude and behavior on his own border-line. It is by what he sees himself, and by the manner of its use that he will gain control of his world and control of himself and rise into character.

Your teachers are seated in no chairs of authority. The University itself teaches not on authority. There *is* no authority but the self-convincing power of truth itself. And if ye would be freemen, it is written whereby ye should be free: the truth—the truth as each one has the open eye, the clear will, the healthy soul to apprehend it and make it his — the truth shall make you free and make you strong.

SOME DEMANDS OF THE NEW INDUSTRIAL ORDER ON THE UNIVERSITIES.*

ADOLPH C. MILLER.

In seeking a theme for this occasion, I have tried to choose one that should be of an educational character, and yet one that should touch the wider and larger public interest in the purposes and activities of the higher institutions of learning. Our colleges and universities—hardly less, those that have been reared on a private foundation, than those that have been created and supported at public expense—are *public* institutions in a more complete sense than those of any other country. In the end they are—all of them—dependent for their prosperity on public approval, no one of them can hope to have a solid success without it, and that approval in the case of any given institution springs out of the faith the public has that that institution is sending out men and women capable of taking a useful position in the world, and of doing good and needed work. In this sense, I repeat, all of our successful colleges and universities are public institutions. The work that the modern world requires is of a sufficiently varied character to permit of a considerable range of variety in the type of institution best suited to different local conditions, but, whatever the nature of the work, it is by its ability to train

*An address delivered at the Annual Commencement Exercises of Nevada State University, June 3, 1903.

men and women fit for service, that the public will test the efficiency of a university and give it favor.

It is under the pressure of this sort of necessity that our institutions of learning have developed many of their most striking characteristics. Colleges and universities are by their very nature conservative, slow to yield their inherited ideas and traditions, even to the calls of an advancing civilization. (Indeed, a moderate conservatism has rightly been held to be one of their best traits). But the American university is flexible and plastic compared with the English college or the French university. The constitution of an English college is hard, rigid and uncompromising, not easily moulded to new ideas or new necessities. And so it happens that the Oxford of today is, perhaps, more like the Oxford of the sixteenth century than the Harvard of to-day is like the Harvard of the fifties. It would be hardly an exaggeration to say that the typically active American university makes more history—observe, I do not say more progress!—in a generation—not to say a decade—than an Oxford college can show for a century. What is true of us as a nation in the field of industrial enterprise, is coming to be true of us, also, in the field of education. To an English workmen or engineer, the fact that a thing has been done thus or thus in the past is one of the best of reasons why it should continue to be done in much the same way in the present. To an American, the same circumstance is one of the best reasons for *not* doing it in the same way any longer. As a nation, we feel very little concern for experience, we are temperamentally impatient of the past whenever it offers a bar to adventure in the present. For us to be wise means almost to do otherwise—*semper studiosi rerum novarum*.

No doubt our light-hearted indifference to experience has cost us some disappointing experiments and wasteful failures. But, on the whole, it has been an element of strength. If it can be said that the Englishman has been spared many blunders because of his stupidity, it can also be said that our readiness for adventure, our eagerness for

experiment, our acquiescence in change, and our quick adaptation to a new environment of our own making, have been the secrets of our most solid achievements and startling successes in the field of industry. And—what I am especially concerned to point out now—this readiness for change, which has been fired to a passion in the field of business enterprise, has also touched the imagination of our educational leaders. They have shown a willingness to experiment with the educational system, high as well as low, in the confidence that though, now and then, here and there, mistakes might be made, nevertheless, in the end, there would come out of it, a preponderance of the good over the evil that would easily pay the costs of the failures and leave us stronger for our work. Whether this faith is justified by the records I cannot stop to examine. My personal opinion is that it is. I allude to it merely because it designates and explains, in part at least, what I regard as the most signal feature of our educational organization—its responsiveness to new ideas and larger demands. And so far as the modern world is one mainly colored, and ordered, and motived by industrial facts and forces, I want especially to consider some of the demands made by the new industrial order on the universities. No one who would number himself among an audience of this character can doubt that the universities of to-day are a most important part of the enginery of social control—a part gigantic in its power when wisely guided. How to use it so as to make it more effective in serving the needs and shaping the destinies of society, is always a worthy theme.

The development of its material resources has been the chosen task of the nation, especially since the close of the Civil War. The best energy of the people has gone to laying deep the foundations of economic power. A continent has been subdued to the uses of man, and our success in the achievement we owe mainly to the skill, and inventiveness, and daring, of our leaders. Never did business enterprise anywhere press science and skill into its service as in this

country, during the past generation. We have travelled a thousand years since the Civil War, so profound has been the transformation wrought in the mechanism of production in that time. New appliances and agencies have succeeded one another with a rapidity that has been unsettling. The period has had all the marks of a revolution—a second industrial revolution; and its course is not yet run. Much as the nineteenth century owes to applied science, we confidently expect the debt of the new century to be larger. Each year sees a quickened pace in mechanical invention and chemical discovery. The dependence of industrial progress on the advance of science could not be more complete. The demand for the man of skill, resourcefulness, and originality has become of growing urgency each year.

An economic situation of this kind could not fail to react on educational ideas and methods, nor were the leaders of education slow to grasp its meaning. Undeterred by the prophets of a different order, they have gone ahead and devoted a considerable share of the educational resources of the country to the development of technical training. They could not have done otherwise without a plain violation of the faith the public put in them. And, consequently, of the many features that have marked American university development since the Civil War, none is more noticeable than the multiplication of facilities for technical training. We have come to regard the school of applied science as one of the handmaids of industry, and we accept it as one of the indispensable functions of an American university, that it should provide facilities for equipping men to pursue each important calling according to the best scientific methods. We do not think such instruction is in derogation of the dignity of a university. On the contrary we think it is one of the ways of linking the university to the chariot of progress.

That there are some very real dangers to be feared from a too vehement insistence on the value of the technical and the professional spirit in university education I do not deny.

But I am not now so much concerned to discuss the limitations and dangers of this view of education as I am to point out some of its useful implications. I shall have something to say later on the question, whether the training of the capacities that make the expert represents the whole, or even the most urgent, service to which an American university can give itself. It is enough, for my present purpose, to point out that the spirit of professionalism is, for the time being, the reigning influence in shaping university policy, and to ask, in a spirit of accord with this view, whether there is not a demand for the extension of the spirit and method of technical education into new fields, and specifically into the field of business enterprise.

In some of its aspects, this is a very old question, in others, it is new, and the discussion timely. I suppose no topic has been discussed on commencement platforms more often than that of the value of a college education to the young man who hopes to find a career in what one generally understands by business. College graduates—no less those who have not, than those who have, had experience in business—are pretty generally willing to give testimony in behalf of the college. But the persistence of the discussion in the face of such testimony is, I think, good reason for suspecting that the public at large is still unconvinced of the soundness of the conventional academic view on this question. Successful business men who have not had a college training are frequently heard to declare against it. Mr. Carnegie, whom a respectable portion of the general public seems much inclined to accept as an authority on education, as well as upon steel and sociology, said a few years ago, that he did not know any successful business men who were college graduates. But such assertions do not settle the question one way or the other; and I should not have thought it worth while to raise the question afresh were there not another aspect of it that seems worth emphasizing. In any case, it seems useless to lay down hard and fast rules, or to draw a sharp line in business life

between the men who have had a business education to begin with and those who have not.

But the phrase "college education" is itself vague—altogether too vague to describe the matter for discussion. It has lost the definiteness of meaning possessed fifty, or even twenty, years ago. The modern university stands committed to no single type of culture; it includes within itself a variety of disciplines, undertaken with different intentions. Between a college of liberal arts and a college of practical arts, like mechanics or agriculture, there are such wide differences of aim, and even of methods, that they cannot be subsumed under the same head in discussing the advantages of college education, and disposed of in the same judgment. The one is professedly a special preparation for a definite industrial service, the other proposes to itself no definite career unless it be that of right thinking and right living. Should it be occasion for surprise, therefore, if these two types of college education be found to meet the test of practicality in different degrees? That the technical college needs no defense on this score is too evident to require argument. That there is, however, good reason for doubting the practical value of the ordinary college course, cannot be questioned. I have no unalterable conviction on this point, but I strongly incline to the opinion of those who deny that the conventional classical, literary, or humanistic training is of momentous use to the man who is going to take his chances in business. The four years' study of Greek, Latin, mathematics, and philosophy do not seem a consummate preparation for the work of market-place, manager's office, or director's room. Those studies do much, no doubt, to cultivate the analytical and reflective faculties, and so far, the time given to them is not all lost. But they cannot do as much by a tithe to ripen the habits of observation and of attention to details, the sense of relative importance, or to train the judgment to accuracy, as four years in the formative period of youth given to incessant contact with the fierce and uncompro-

mising realities of business life. College life, of the type now in question, is, under the finest of conditions, a sheltered existence; it is not its principal purpose to train those faculties or harden those fibers which are most prized in the practice of business. Let me not be misunderstood. I set a very high estimate on just this sort of culture against which I seem to be arguing. I regard it as one of the most precious possessions in life. But I recognize that its eternal claims to our gratitude are derived from ends and ideals not ordinarily accepted as tests of business fitness. When we are seeking the relation of college education to success in business, we do not solve the problem by insisting that life is more than livelihood, that the man should be more than his calling. When all this is admitted the problem is still upon us.

The problem then which at the present stage of public opinion it seems profitable to discuss is not whether college education of the traditional kind may be of value as a preparation for business, but whether it is possible to arrange a course of university training that shall prove an asset of distinct and certain value—a course that shall bear much the same relation to business as existing courses in law, medicine, or engineering do to their several professions. Perhaps the analogy would be even more suggestively stated if the training of business men were likened to the pre-medical and pre-legal courses that have been established in recent years by some universities. For these courses seem to be off-spring of the same necessity that now bespeaks our friendly offices for its last-born. These courses aim at a considerable degree of special preparation for a given profession, without intentionally sacrificing anything of what is cherished as essential in all college education worthy of the name—the quickening of the intellectual and spiritual insight of the student and the widening and elevating of his sympathies.

This is the question, briefly stated,—a question that is deriving interest and timeliness from the importance and

dignity that the business career is coming to hold in the esteem of the public. Whatever prejudice may still linger in the unemancipated public mind of old-world communities, with their traditions of a feudal culture, the truer and more liberal sentiment of the new world regards business as affording opportunity for a career good enough and big enough for any man. It is into the field of business enterprise that the best talent of the nation is going, and its achievements in the realm of business organization are among the greatest and most characteristic works of our national genius. It is in the ranks of the merchants, manufacturers, inventors and organizers—the captains of industry—that we must look if we would find the "Plutarch's men" of our day.

With the business man bulking thus large in the American imagination, it is natural that the demand should be made—and made with strenuous insistence—that the universities should undertake to do something more, and more specific, to equip young men for the business life than they have done hitherto. And with characteristic zeal to meet this new demand, we find a number among our leading universities that have already begun the institution of Colleges or Schools of Commerce. To mention only the names of the pioneers in this movement, we have the Universities of Pennsylvania, Chicago, California, Dartmouth, Illinois, Michigan and Wisconsin. The College of Commerce is bound, sooner or later, to take its honorable and equal position in the sisterhood of colleges that makes the American university, wherever the demands of the new industrial order are heeded. And to the young men of the rising generation will be given opportunity to fit themselves for service, on a scale commensurate with the magnitude and complexity of the expanding business of the modern world. And the American university will, in a fresh sense, become a momentous factor, not only in the success of individuals, but also in the prosperity of the nation.

Here, however, it is necessary to pause to notice an

objection. Many who will agree with what has thus far been said, many who will agree that a properly organized curriculum can do much to train the higher business faculties, will yet doubt whether the undertaking is worth while, in the face of what seems to them the certain and inevitable drift in the business world of the twentieth century. The conviction has taken hold of many minds, not easily given to alarm, that the range of independent opportunities in the business world is being seriously narrowed by the changes that have ushered in the new industrial order. It is not necessary to recall with any fulness of detail the essential features of the new system of industrial control. Its merits and its defects have been pretty thoroughly canvassed in connection with the recent discussion of the Trust Problem. I believe it is admitted by most well-informed persons that the principle of coöperative capitalism, which has given us those great associations of capital that are popularly called *trusts*, has been productive of certain good in the sphere of economic production. The prodigious strides that American industry has taken in recent years are largely due to the superior efficiency of the new capitalism. By limiting more and more the friction and wastes of the competitive system and by securing, in addition, the enormous advantages of centralized production on a vast scale, the capitalistic combinations have effected a saving of industrial energy of almost incalculable extent. This, I say, is very generally admitted. But the trusts have done all this, we are incessantly warned, at the cost of a real and dangerous abridgement of opportunity for the average man of to-day. And, inasmuch as all the signs of the times point to a still wider application of the principle of coöperation in the future, a still further shrinkage of opportunity for making a living and doing something in the world of business, seems manifest destiny. For the young man without wealth or inherited position the outlook under the coming *régime* of economic imperialism is dark and cheerless. We are fast in the tentacles of the octopus and the days of

individual opportunity are gone. Thus speaks the prophet of the order that is passing.

Let me say at once that I do not share this pessimistic view of the outlook afforded by the industrial order that is coming, nor do I see any reason for believing that the man of trained capacity will be less of a figure in the future than he has been in the past. This sort of economic pessimism rests on a very shallow understanding of the essential factors of our business system. It can not be too often repeated to the young men of to-day, that the modern world demands the highest type of efficiency of its leaders and workers in every department of activity, as the indispensable condition of success. This is not only as true in business as in any other field, it is even truer. In the modern sense, efficiency means not simply power—power in general—but power to do something—something in particular—and do it as well as it can be done. In this sense the man of excellence is still the moving force in the world, and the young man who has possessed himself of the capacities that make for excellence and leadership, the man who has learned how to make expert application of his developed force and ability, in the service of society, need never fear that he will be long without an opportunity. The best asset,—far better than a liberal bank account,—that the young man who believes in himself and in his times can take with him into the world, is a well-trained capacity. It will pay bigger interest than the so-called "safe investment" and steadier dividends than the so-called "big thing." It is the real preferred stock of modern industry—the one security whose value cannot be destroyed by bankruptcy, foreclosure, reorganization or consolidation.

In emphasizing thus the part played by expert capacity in the modern business system, I may seem to be neglecting the important rôle that belongs to capital. I am not insensible of the close dependence of modern industry on capital, but I am sure we are too prone to exaggerate its importance to the individual. It is a mistake, made with especial

frequency by the man who wants capital and hasn't it, to think it the decisive factor in business success. To him capital seems to hold the right of way to the best opportunities the world affords, and he views the concentration of capital, that the industrial consolidations are effecting, as the complete destruction of opportunity for the many. It is certainly true that capital gives power of industrial control: whoever possesses capital has it in his power to set industry in motion. This is much but it is not all. Mere money, capital—the lifeless tools of production—is in itself as dead and barren as the unwatered desert. Capital is not self-directing, nor is the owner of capital always guided by an unerring instinct. It is as true in business as any where else that "a fool and his money are soon parted." Capital needs the touch of human service to quicken it to useful life, and the vaster and more complex the organization of industry becomes, the more intimate this dependence will be. It is true that the big combination can, in virtue of its massive capital, do many things that a smaller concern could not attempt, but the big combination absolutely demands for its success the highest order of personal ability. The history of broken trusts shows too plainly that there is no magic in mere combination that invariably brings success. What is it that makes some serious students of economic evolution regard the industrial tenure of the trusts as at best precarious? The doubt, namely, whether there is enough first-rate ability in the country to manage the affairs of these gigantic concerns. "The mere work of centralized administration," says President Hadley, "puts a tax upon the brains of men who are accustomed to a smaller range of duties that very few find themselves able to bear."

Just as Manila and Santiago showed that the wonderful improvements of naval ordnance had not displaced the man behind the gun, so the victories that our men of industry are winning for us in the struggle for industrial supremacy, show that the man is still superior to the dollar. We can

not all expect to be Morgans or Carnegies, but there is room, not only at the top, but all the way through the hierarchy of industry, wherever skill and capacity are requisities for efficient service. The kind of places may be different from those offered under the old conditions, some readjustment of ideas and expectations will be required of most of us, but, such as the new order is, it will afford abundant opportunity to men of disciplined character and intelligence—opportunity enough to satisfy any ambition and furnish outlet for the most restless energy. But of one thing we may be sure: whatever we may think of it, the new order is here to stay; and the first business of the young men of to-day is to recognize it and learn to adjust themselves to it. We shall learn from experience how to control the new system wherever that may be necessary in the interest of society, but we shall not abandon it. We will never commit the folly of turning back from this new, compact, scientific organization of industry to the warfare and wastefulness of the old competitive system. Each of us should, therefore, learn to take his place in the new order, in the faith that what is good for the community cannot fail to be good also for him.

Under these circumstances the educational agencies whose function it is to train the capacities that make for expert service, cannot help finding an ampler field than ever before. And the School or College of Commerce is certainly to be a part of those agencies in the future. So far, the demand made by the new industrial order on the universities seems clear. But this is not all, we may not stop here.

What I have said thus far I have meant to be in strict conformity with the technical ideal of education—not because I am in complete sympathy with that ideal, but because it must be recognized as the most distinctive and the strongest of the influences that are shaping educational policy in this country to-day. More than that, I have tried to take a somewhat personal view of the situation, dwelling

on those aspects of it which appeal with particular force to the young man. He is concerned to know what impending changes in the world mean to him personally. And it is with his difficulties and problems largely in mind, that I have spoken. But I should be untrue to my deepest convictions of the supreme need of universities in our country and in our time, if I professed to rest content with the notion of "getting on in the world" as the test of effective college education. The traditional American idea has always rightly regarded the college as more than a place where young men are taught to play the bread-and-butter game successfully. It is not for this alone, nor for this primarily, that public and private munificence has shown such favor to the universities. The connection between public welfare and the higher education that has inspired the founders and builders of our universities lies deeper, and implies far greater capacities for public service than could be furnished by any system of technical instruction, however effective. Let it never be forgotten that the profoundest need the country has for college-trained men comes from a different source. So long as America shall continue to be a community of self-governing freemen, so long as public sentiment must be relied on as the best and strongest force in government, so long as the guidance of the destinies of the country is the share of the citizen, so long the building of character, of disciplined character, the character that befits the American citizen, must be the first and deepest concern of the American university.

If the history of the nineteenth century teaches one lesson that the student of public welfare should take to heart, it is the futility, in a democratic republic, of trusting to enactments and prohibitions to secure the ends of social justice and an upright public order. Each step in the development of our recent civilization has made it clearer that it is by character alone that social salvation will come. A nation can no more live a healthy life without a conscience than can an individual, and it is only as we succeed

in bringing to the tasks of government and of business the same standards of right and wrong that we apply in our personal relations, that we can hope to maintain in its integrity the polity builded for us by our fathers. That we as a community have suffered a decay of conscience in the past forty or fifty years is the opinion of many competent observers; that our standards of political and commercial decency have failed to improve as rapidly as our standards of personal conduct, no one will deny. It is still too much our habit to regard politics as business, and business as a game, in which everything is legitimate that is allowed by the rules. The disposition to take shelter from responsibility in these affairs behind a code that is admittedly defective threatens to become a national vice.

If these tendencies were a danger under the simpler economic constitution of the past, they are a menace of multiplied force under the new order; for traditional safeguards are losing much of their efficiency, in the region of business at least. Time was when competition gave a substantial measure of protection to workman and consumer, and insured conformity to a certain level of commercial morality. But the times have changed; and, in place of a system of diffused management, we have centralized control of industry, with its far stronger temptations to abuse and excess. Under such circumstances, private control of industry can be compatible with the public interest only if exercised with a sense of the public obligation which such power entails. When business attains the dimensions that many of the consolidated enterprises have in recent years, it takes on a public character, and the public has a right to invest its management with the qualities and limitations of a trust. Curiously enough, the name which, under the earlier exigencies of legal invention, was applied to the great combinations of capital, is significant of the spirit in which the business of the new era will have to be conducted. It is nothing less than the spirit of trusteeship—the spirit of consideration for the rights and interests of others; yes,

even more than this, the spirit of a partnership, in which the claims of the public will not be set aside by the declaration "This is my business, I will manage it as I like." We may not disguise from ourselves that the modern business system is on trial, and that its fate will depend largely on the spirit displayed by those in command. There never was a time in the history of the country when it was so important for the great business interests to have the conscience of the nation with them. Many people are growing restive under what they regard as the aggressions and insolence of concentrated wealth and industry. If business is conducted in a narrow, selfish, unyielding spirit, indifferent to the better sentiment of the community, or contemptuous of the equities of others, it is no bold prophecy to say that the early decades of the twentieth century will witness some striking social transformations.

How infinitely important, then, for the salvation of democracy and of free enterprise, for the maintenance of liberty and of opportunity, and for the preservation of our claim to leadership among the nations, that the men who shall stand forth as leaders in industry shall also be leaders in citizenship.

The universities would be untrue to their great historical office as bearers of some of the noblest traditions of the country if they did not hold up this broader and finer view of success and duty, even in the business life. It is the God-given duty of the university to inspire the student with visions of the eternal worth of purity and nobility of character, and unless it does this in every department of its teaching, it fails, and nothing can compensate for the failure. Opportunity and obligation are the twin watchwords of the university, and the university would widen its opportunities in vain if it did not at the same time spread a wider sense of the obligations of wealth, success, opportunity and citizenship throughout the land.

THE RELATION OF BIOLOGY AND THE NEIGHBORING SCIENCES.*

WILHELM OSTWALD.

The event which we celebrate to-day is like the launching of a beautiful ship. The keel has been laid with care; the hull has been made lean and powerful; the engines and propeller are of the newest and best construction. But above all we know that the captain is a man who can guide the ship on the high seas of science with a firm and courageous hand; for we are all aware of the wonderful journeys he has already made, and what fabulous treasures he has thereby gained. We may thus not only wish, but with all the certainty that is possible in human affairs, we may also predict for our splendid ship, a favorable and successful voyage. Only one question remains to be answered: What will the weather be?

Gentlemen, it is a hazardous undertaking to predict the weather of the future. Moreover, our ship is so constructed that it is capable of withstanding storms, and sailing against adverse winds. But since its builders have put into its construction love and hope, it would be a great pleasure to us if we could find adequate grounds for predicting good fortune for our ship in this respect also. Here the wish must

*Address delivered at the Dedication of the Spreckels Physiological Laboratory of the University of California, by Wilhelm Ostwald, Professor of Physical Chemistry at the University of Leipzig. Translated by John Bruce MacCallum.

not influence the judgment; we must test as justly as we can, the conditions of the scientific weather. Perhaps then we may learn in what direction it will be best for the ship to steer, that we may expect a successful journey.

A voyage of scientific discovery of to-day is like a journey taken five hundred years ago for the finding of new lands and seas. Unknown country is on all sides of us; and we shall see new things in whatever direction we pass beyond the boundaries of the known. For there is nothing easier than to make discoveries. He who cannot discover and classify new facts in any branch of natural science after a few weeks, or at most a few months, of industrious work must indeed be ignorant or unskilled. But more than this must be accomplished. New facts in themselves are only an insignificant part of a science. Their main value consists in their relation to what is already known, and to what will be known in the future. The value of new facts is like that of gold. Gold in itself is nothing more than one mineral among thousands; it is of value only in connection with the whole system of commercial values.

Thus if its only duty were to discover new lands, our ship might take any course it chose; it would be only a question of time when new land would be sighted. But it would be a matter also of chance as to what the nature of this land might prove to be. And a sceptical observer would perhaps say: One thing is certain, that we know nothing of this new land, and we should not attempt to make any predictions whatever concerning it.

To this we must answer that it is by no means so impossible to look into the future as we ordinarily think. If we go to the bottom of the matter we find that our whole civilization rests on the fact that we can and do look into the future. Indeed it may be said that the height of any civilization may be directly measured by the thoroughness with which the prophets of this civilization understand their calling, and are able to predict the future. With the exception of eating and drinking, sleeping and kissing,

there are very few things that we do entirely for their own sakes. The countless other things with which we fill out our lives, are done by us only on account of the results we expect from them in the future. This is what we have all done today when we prepared to come to this gathering. If you do not immediately arise and go home it is only because you expect to hear from myself and from others better things than you have heard before.

Naturally the degree of certainty with which one may prophesy is very different under different circumstances. That tomorrow and the next day, and every subsequent twenty-four hours, the sun will rise and set, that every 365 days the change of seasons will recur, we regard as so certain that we do not hesitate to arrange our entire lives on this basis. On the other hand we cannot, at least in Europe, plan a picnic two days in advance, because we do not know whether or not it will rain. That our countries will retain their financial credit for decades and probably for centuries, seems to us so certain that we do not hesitate to base our entire pecuniary existence on this assumption. What the exact condition of the stock markets will be, however, might perhaps be predicted a week ahead by a specially gifted broker; while the majority of men would be entirely unable to make any prediction.

Our ideas of the future consist of an enormously tangled and complicated tissue varying in its nature from the greatest certainty to the most doubtful possibility; and in every one of these various cases we must distinguish the *nature* and the *degree* of probability. We recognize at once that in the struggle for existence, that man will be most efficient who in any field can answer these questions: "What will happen?" and "With what degree of certainty will it happen?" more accurately than his fellow-men. Upon this rests the high veneration and the slavish fear in which races of low development hold their prophets and medicine men. When the Roman Republic undertook a war, it asked the oracles what the outcome of the war

would be; and when in 1870 Bismarck saw that the conflict between Germany and France was unavoidable, he asked Moltke exactly the same question. The oracles predicted from the viscera of a sacrificial animal; Moltke made his prophecy on the ground of his scientific investigations of the military conditions of both countries. Here we have an illustration of the difference between the old and the new civilization; and the word expressing this difference is *science*.

This is in fact the meaning of science; its aim is to make possible a glimpse into the future; and science is the more perfect, the more broadly and surely it allows us to obtain this view. The problem of seeking to find what is the essential thing in science has at some time concerned each one of us; and the answers to this question are very diverse. According to the condition of my knowledge I have found in the course of time that my answers have been very different. Since, however, I have possessed the definition which I have just given you, (which also I find given in Locke) I find myself in a position to solve a great number of different problems more easily and more surely than it was possible for me to do up to that time.

And now, gentlemen, though we have apparently wandered far from the subject of our discourse, we find ourselves again in the midst of it. Science must give us the means of choosing the course which our ship must hold in order to reach with the greatest certainty those unknown lands in which the greatest treasures lie; and when we have reached the sought-for coast, science must show us where we may best cast anchor, and how we may most easily make a landing.

Here we deal truly with a science of sciences. Special problems of mathematics or chemistry must not be solved here. On the contrary we must deal with problems concerning the laws according to which each individual science develops regardless of what it includes. Such a science hardly exists at the present time. There have appeared, it

is true, valuable preliminary studies; the histories of the various sciences have been more or less thoroughly investigated, and *philosophy*, according to the modern definition, comes near to this problem. Still there is lacking for the most part the emphasizing of the history of development in this part of philosophy as well as the discussion of the points of similarity in the histories of the individual sciences. But from both sides there is undoubtedly present a tendency towards the advancement of work in this direction, and we may then look for the establishment of a *biology of the sciences* as a product of the near future.

It is in fact a *biological* problem with which we deal. A rock or a comet has no need of science, for as far as we are able to judge the existence of one of these bodies means nothing to the body itself. We on the other hand, who wish not only to maintain, but also to *improve* our conditions, need science for this purpose; for in order to retain anything, we must know the conditions under which it exists, and in order to improve it we must know how far it is possible to influence these conditions. The surest and broadest knowledge that it is possible for us to have of this is that which we call science.

In fact if we ask what is the most general force which has been active in historical times within our knowledge, and is still active, we recognise that it is the *conquest of all intellectual fields by science*. If we imagine the most primitive conditions in the development of mankind, we see that there is no doubt that *the* individual and *the* race which is finally successful in the struggle for existence is the one that learns to see most clearly into the conditions of the future and thus learns to influence them. There are conditions in which the war of physical force seems to settle the question; but even here we see *skill*, that is, the intellectual or scientific factor, offset a large part of the brute strength, and this factor increases as development advances. The greatest leaders of men have been those who saw most clearly into the future.

Perhaps the objection will be made here that we are accustomed to regard the law-makers and political organizers, and not those who make discoveries or inventions, as the leaders of men; and it is well to account for this apparent contradiction. We apply the same word *law* both to the regularities of the natural processes, and to the arbitrarily influenced actions of mankind. The great thing which the moral and political law-makers have done is *that they have made it possible in certain fields of human actions to make predictions*. Since they did not know the internal causes upon which such actions are dependent, they were obliged to make such external rules or laws in the *juristic* sense. These agree more or less with the unknown psychological and biological laws which are applicable to the phenomena in question. The better they have agreed, the more lasting have been these laws, and the greater and more powerful have been the law-makers. Thus every political and moral organization is dependent on biological conditions; and these fields are evidently those which are destined to be irresistibly conquered by science.

Many of my friends, and indeed those whom I hold personally in very high esteem, have objected very strongly to these views when we have discussed them; and from this I presume that such an objection suggests itself to you also. We are in the habit of connecting with those questions which we have discussed, sensations which are of great value to us, and which we allow to exert a great influence upon us. We regard the political and moral laws with a feeling different from that with which we look upon physical and chemical laws. That which we call *reverence* distinguishes our attitude toward the former. And at the same time there is another great field which seems to be quite apart from the influence of science, and which, nevertheless, forms a great and precious part of our life. This is *art*. Here also more or less vivid sensations become active within us, and lead us to regard art as something which takes us beyond our usual selves, and our every-day

conditions. These sensations of the beautiful, the great, the strong, the eternal, we do not wish to disturb or belittle; and therefore those who see the value and charm of life in those things, protest against their absorption by science, since the calmness and coldness which they ascribe to science are directly opposed to those sensations.

Now in a circle such as this where each one of us has in some way dedicated the better part of his life to science, I do not need to prove that science requires from her children soberness and coldness, so far as criticism is concerned, that is in testing whether work is trustworthy and sound. But no less does science demand of us *reverence*—reverence for the most lasting of all things we know, reverence for *truth*. This reverence arises in us from the knowledge that there is no escape from truth. It matters not how well hidden an error may be, or how perfectly disguised in the garb of truth, we all know that it will nevertheless be detected and banished; and that the inner life of science can drive forth with irresistible force such foreign lodgers. And this expulsion indeed occurs the more quickly and more vigorously, the more intimate the communication is between the false and the true parts of the organism, because in this way the incompatibility sooner becomes evident. In the body of science only those errors which exist in an isolated structure connected with the other parts of science only mechanically, may remain there for a long time like an encapsulated foreign body. There is therefore no better means of testing the truth of a scientific observation than to place it in organic relation with as many other parts of science as possible. We shall have occasion to discuss this matter more thoroughly later.

Why this feeling of reverence does not arise in us with such strength when we think of science, as it does when we think of those things whose greatness and strength we have been accustomed to know from our youth up, is explained by the fact that we do not yet recognize the irresistible power of science as a matter of daily thought

and experience. But when we have once learned to regard science as that which controls our whole existence, then we know that there is nothing more worthy of reverence, and nothing more powerful.

And now what is the position of the beautiful, of art? In the first place it is beyond all doubt that the development of art is dependent upon that of science. If one recalls the history of one of the completed epochs of art such as that of Greek sculpture, it is apparent that from step to step the growth of this art has depended upon increasing knowledge; upon the knowledge not only of the anatomy of the subject, the human body and its movements of expression, but also upon the knowledge of the materials, the marble and the metal. It is evident also that the degree of development of art corresponds with the scientific and technical development. Just as science in general requires for its advancement a constantly increasing knowledge of its subject and its materials, so it is with art. And just as in science a wonderful work may be done by a great genius with limited materials, such as the formulation of Newton's law of gravitation or Mayer's law of energy, so also a great artistic genius may with the limited materials of his time, produce works which will live hundreds and perhaps thousands of years, works such as the dramas of Aeschylus or the Ninth Symphony of Beethoven.

Here too we are struck in a certain sense by the superiority of science; for while we cannot doubt that these products of scientific work will endure as long as civilization is present on the earth, we hesitate to make the same statement concerning the works of art. We cannot deny that in Aeschylus we are aware of a trace of antiquity. In other words there are passages which no longer affect us at the present day as they certainly moved the people of the time of Aeschylus. And in the same way it is not impossible to imagine that a time will come when the Ninth Symphony will affect men no more deeply than a symphony of Haydn now moves us.

This seems to indicate that perhaps art itself is destined to become slowly absorbed by science. I am inclined to believe that this idea will find vigorous and perhaps angry opposition. I emphasize the fact therefore that I personally am indebted to art for many uplifting and beautiful hours. Poetry, music and painting have given me refreshment and new courage, when exhausted by scientific work I have been obliged to lay my tools aside. But I cannot escape the conviction that this is a sign of imperfection, not so much an imperfection of science as of my own self. For science in the sense in which I speak of it today, exists only in its first beginning and the human organism has not advanced far in its adaptation to it. Thus each one of us suffers more or less from atavistic frailties, which find their clearest expression in our constant complaints concerning the immeasurable complexity and growth of scientific materials. We ourselves and our children, and our children's children shall still enjoy through art, hours that are beautiful and perhaps great; for there will always be fields of human experience into which science has not yet penetrated and in which art will have undisputed sway. But to a future race which has conquered the science of psychology, many of the valued psychological dramas of today will seem as naïve and unsatisfactory as the first attempts that a child of four years makes at drawing.

But we must not dwell longer upon these questions, because there are others more fundamental which are to be answered. We have discussed these matters only that they might be applied to the problem with which we are dealing, namely, the gaining of a clear idea as to the direction in which the science of *biology*, which we consider specially here, will probably advance. In order that we should have the right to make any statement concerning this, it has been necessary to show that such a prophecy is possible. And now one more small preliminary consideration brings us directly to the problem.

Science is an organism which strives constantly for self-

preservation and development. It is therefore provided with organs of regulation, by which that which is useful is preserved and that which is harmful suppressed. It is possible for these organs to become active only when the processes themselves which are to be regulated come into activity. There is a certain delay in the working of each regulator. Thus it follows that science like every other self-regulating apparatus must necessarily undergo periodic variations from a middle point. This middle point is not necessarily unchangeable at all times. In our case it is undergoing a constant advance because science can only increase and not diminish in scope. Further there are here many sources of energy each with its own group of regulators; therefore we have to do with a number of superimposed phases which form a very complicated picture. For example, by the summation of many maxima or minima which in themselves are small we obtain a very great elevation or depression. We shall try to determine what part of the curve of depression or elevation science in general, and biology in particular now occupy.

Now one of the very influential components of these movements is plainly to be recognized. We have just passed through a period in which all sciences have been isolated, a period of *specialisation*, and we find ourselves in an epoch in which the *synthetic* factors in science are gaining a constantly increasing significance. Consider, ladies and gentlemen, what you have before you. In the lecture room of a *biological* institute there speaks to you on this important occasion, a man who is not only not a biologist, but who on the contrary has been expressly invited as the representative of a sister science. And further this man himself is the product of a synthesis of two neighboring sciences, namely physics and chemistry. Furthermore when this man seeks to bring to you the best which he can gather from his garden, he brings you no word of physics and chemistry, but rather thoughts which concern the triad, physics—chemistry—biology; and problems which include

these and still more distant sciences. This is not an accidental thing, but a genuine expression of the efforts which fill all our days. Everywhere the individual sciences seek a point of contact with one another; everywhere the investigator determines the value which his special results may have in the solving of the most general problems. In short all sciences are tending to be philosophical. Nowhere is this tendency towards fundamental explanations so great as in biology. A glance at the literature of biology shows with what ardent care the biologists strive to throw light upon the fundamental problems of their work.

Thus the biologists consider it of the greatest importance to learn the relation which their science holds to the neighboring sciences, especially to the inorganic natural sciences, chemistry and physics; and the conflict of opinions has become marked by the watchwords, *vitalism* and *mechanism*. As is true in all such instances, one great danger arises, namely, that a complex of many things of most diverse character, is often named according to one of many properties by which it may be determined. In fact we see that a well-known investigator calls himself a mechanist while the mechanists think of him as a vitalist. When I seek to deal in my own way with the problems which lie before us, I prefer to remain neutral in relation to the two parties. Much more is it my object from the broadest standpoint to arrive at a true estimate of the relations of the sciences which we are considering.

In an attempt to make a general classification of the sciences, one soon arrives at the conclusion that they do not stand *side by side*, but that they *include* one another in a reciprocal manner which may be represented incompletely by geometrical figures. Human experiences are above all the objects of study for every science. Each of them is made up of an unlimited number of component parts only a few of which according to the purpose of the science are taken into consideration. Thus the greatest number of experiences is included in that science which considers the

smallest number of components. And it follows conversely that the smaller our range of choice in experiences is, the greater the number of components included by the sciences. Thus the science which from one point of view is the broadest is from the opposite standpoint the narrowest. The converse of this also is true.

In this wise you may note that on the one hand the theory of varieties (Mannigfaltigkeitslehre), by which I mean something of which mathematics or the theory of magnitudes is only a part, is the most comprehensive and the most narrow of all sciences, since it includes all experiences but considers them from only one standpoint (namely that each experience is an individual and separate thing). Psychology on the other hand is the narrowest and most comprehensive science because it considers only the phenomena which are connected with the existence of the human brain (or if one prefers it, with the human soul). Here however all possible components are taken into account. One may see at a glance that in the series of sciences with which the theory of varieties deals, each science pre-supposes the existence of that which precedes it in the series, but goes farther in that it comprehends new factors or new components of which the preceding science took no account. Its scope is therefore made narrower since it deals only with the subjects affected by these components. Mathematics thus has to do with varieties but only with those which possess magnitude. Geometry also deals with magnitudes, but only with those which have the properties of space. Physics treats of special objects only in so far as the various kinds of *energy* act upon them. Chemistry on the other hand deals with those physical objects which are distinguished from one another by qualitative differences with the exception of those differences due to the presence of different forms of energy. According to this system biology is that science which treats of those chemical objects which have a stationary condition of energy, that is, of nourishment and of reproduction. Finally, psychology

deals with life processes only in so far as they affect the functions of the mind. By this a practical and almost complete knowledge of the mental functions of man is arrived at, and this is almost the only thing of which we have certain knowledge.

It is scarcely necessary to say that this classification is arbitrary in that one may introduce numerous intermediate steps between those already given and in this way consider smaller differences. Thus one may interpose sociology and anthropology between biology and psychology, and physical chemistry between physics and chemistry, etc. I need not go farther into this matter. Of more importance perhaps would be the introduction between mathematics and geometry of chronological science, that is, the knowledge of the laws of *time* (which is not to be confounded with historical, geological or astronomical time). Still these considerations would carry us too far.

The most essential thing in connection with our problem, however, is that we should recognize plainly the general relations of biology. It includes all sciences from the theory of varieties to chemistry, that is, all biological phenomena are comprehended by the laws of these sciences. In exactly the same way all chemical phenomena are subject to the laws of mathematics and physics in so far as no chemical phenomenon will, if it is well founded, be contradicted by these laws. But the laws of mathematics and physics do not exhaust that which can be said concerning chemical phenomena; and the qualitative material differences which form the object of chemical study cannot be completely worked out by the means which these sciences afford. The cause of this lies in the fact that in chemistry we have a science of more manifold character than in the preceding sciences. It makes no difference whether a sphere of gold or one of carbon of equal size be charged with a hundred volts of electricity so long as we consider only the physical, that is, in this case, the electrical phenomena. But there is an irreconcilable difference, from

the chemical point of view, between *burning* a sphere of sulphur and an equally large sphere of carbon. In the same way chemical composition does not distinguish a living man from a dead man, but biologically there is a fundamental difference. The former is capable of nourishing and reproducing himself; the latter has not this power. You will perhaps here make some objections; but I do not believe that you will be able to make any essential change in this statement; at most it might be necessary to make the definition of life somewhat more accurate.

From this we obtain directly the answer to the much-discussed question as to whether the laws of chemistry and physics are sufficient to explain all biological phenomena. The answer must, from one point of view be yes, from another point of view no. We may say *yes* in so far as all biological phenomena lie within the realm of the possibilities which are given by these sciences. On the other hand, we must say *no* in so far as in this realm of possibilities a much greater complexity is attained by biological facts than it is possible to explain by physics and chemistry.

Perhaps the relationship of which we are speaking will become clearer if we inquire into the analogous relationship which exists between mathematics and physics. It is certain that all physical phenomena are considered under the conception of magnitude, and to this extent physics may be regarded as a part of mathematics. But it is just as sure that it is impossible to gain a complete knowledge of a physical phenomenon by the means afforded by mathematics alone. We can, for example, represent mathematically the physical processes which are connected with the passage of an electric current through a given conductor with that degree of accuracy which is attainable by the present methods of analysis. But we cannot represent mathematically the difference between this process and the conduction of heat through a similar body; for here we meet with new kinds of manifold characters which are not present in mathematics but are dealt with in the first place by physics.

Now since the mechanists look at this matter from one point of view and the vitalists from another, we have at the present day the remarkable phenomenon that in both camps there are highly distinguished and thoughtful investigators who apparently hold opposite views, while there can be no more than one true standpoint; and the members of both camps are known to us as earnest and trustworthy seekers for the truth.

Undoubtedly these general considerations have their value in connection with problems with which we are dealing only in the thorough investigation of the components which serve to distinguish biological objects from chemical objects. We sum up this distinction ordinarily in the word *life*. If we inquire into the parts of this concept which may be recognized and measured we find the following to be true: Living beings in the first place are not stable, but on the contrary are stationary structures. Rapid changes take place in them of such a nature that gain and loss counterbalance one another so that the whole system experiences only slow changes (which are almost all periodic). Since all physical changes may be represented as displacements of different kinds of energy in space and time living organisms are characterized by the fact they keep their condition of energy approximately constant in its nature and amount, while a constant current of various energies flows through their bodies. According to the general laws of energy this can take place only in such a way that the living organism takes up energy of a higher potential and gives it off at a lower potential. In the meantime the energy has been used for those transformations which make up the various activities of life, namely, movements, the production of heat, reproduction, etc.

These characteristics are common not only to living organisms but also to many inorganic structures. A burning candle whose wick is supplied with melted fat at the same rate at which it burns, or a benzine motor which regulates its benzine supply by means of the ball governor

in such a way that its velocity remains constant, has exactly the same property as a living organism. Thus we are in the habit of speaking of the "flame of life" or of the "machines of our bodies," but we do not regard these things as living organisms because their existence is not self-maintaining. When the fat is used up, or the benzine is exhausted, the flame goes out and the motor comes to a standstill, for the former cannot produce new fat nor can the latter obtain new benzine.

Still it is possible to conceive of a further regulator which might pump new benzine from a tank into the reservoir of the motor when that which is already there becomes exhausted. But in the end this also would be used up or some essential part of the machine might become broken so that the stopping of the machine would become inevitable. In order to maintain itself, or others of the same kind, the machine must in the first place be able to go where it can find new benzine, or, on the other hand, it must be able to replace by its own efforts the parts which have been destroyed; or it must, before it is completely broken, be able by itself to create a new machine which will carry on its work. *If such a machine existed we would be obliged to regard it as a living organism.*

Such a conclusion will perhaps seem to you arbitrary. Still among others one very able investigator has expressed the opinion that even if a structure with all the properties and functions of a certain organism could be artificially produced this would nevertheless not be a true living organism. With reference to this it is only necessary to ask the question, how it would be possible to distinguish a true living organism from an artificial one of the same character, assuming that such an organism could be produced. According to the assumption, both organisms are identical in all their properties, that is, in all those which can be recognized. And two things which can not be distinguished from one another must be considered as fundamentally the same.

It will be found that this conclusion is by no means so arbitrary as at first appears. Our conceptions are formed by gathering together the common points of many phenomena and neglecting those factors which are not common to all. In *stable* chemical structures the conception of chemical *substances* includes those objects with identical specific properties, and we are able to form this conception because we can find or produce the individual substances, for example, sulphur, under the most diverse circumstances, and they show always the same specific properties. It is much more difficult to form such conceptions concerning structures in which chemical *changes* are taking place. In order that such structures may be the subject of the formation of a concept they must appear stable at least externally since otherwise we should have no means at all of identification. Since, according to the definition, they are not *stable* they must at least be *stationary*, but even stationary structures will not lead us to the formation of a concept if they do not always appear in the same form. Structures of this sort which are *physically* stationary are rivers, clouds, and waves; they are essentially characterized by definite special formations for the existence of which conditions are easily and frequently brought together. Structures which are *chemically* stationary occur very much more rarely because the conditions are more difficult to bring about. The only instance which I can present to you is that of *flame*, for the existence of which there are necessary the following factors, namely, the almost omnipresent oxygen, the widespread remains of plants, and the presence of a temperature of about 400° or 500°. And this simple group of conditions very seldom occurs spontaneously, that is, without the intervention of human beings.

It is evident, therefore, that the voluntary formation of such structures as possess in addition to their stationary properties also the power of self-maintenance, that is, the capacity for seeking out the necessary sources of energy must be an extremely rare phenomenon; and only when

such a structure is possessed of the property of *reproducing* its kind will the possibility arise of its coming so often under our observation that we may be able to form a corresponding concept. From this point of view the condition of affairs seems to be as follows: These considerations teach us nothing concerning the manner in which the organism may be constructed; but they do indeed teach us that we would never have arrived at the conception of the organism as a stationary chemical structure if this structure did not possess in a special sense the properties of assimilation and reproduction. These properties are those which are always met with in the stationary chemical structures which we call living organisms. They form the new and specific features of biology as opposed to chemistry. In this respect the vitalists are entirely correct.

When, however, according to this point of view it is maintained that we "consequently" shall never be able to explain life, there exists a confusion between a problem of scientific classification and one of experimental investigation. The explanation of this lies here, as everywhere, in the recognition of real relationships between different series of phenomena. *One* chemical explanation of life we have already discussed. There can be no doubt in the minds of any of us that life without chemical processes in which free energy is available is inconceivable. That which is lacking is the complete analysis of the individual chemical processes of this sort which take place in the living organism. In a general way we know many of these processes, such as the phenomena of oxidation in the tissues, many of the processes of digestion in the intestinal canal, etc. Most of them, however, are still unknown to us. It must as yet remain doubtful whether or not it would be possible to *create* such an organism even if we were possessed of a knowledge of all these processes. We have conceived of and explained many things without having been able to *make* them, and whether the living organism belongs to this group or to the other class of those structures which we can

manufacture, can be determined only during a future period of study.

In order to make more clear what I mean I shall call your attention to an illustration. In a space in which there is contained no electricity we can at any time create it; we are able, in other words, to change other forms of energy into electric so that it will include its two factors electrical quantity and electrical potential. On the other hand, we cannot in the same way produce the energy of gravitation but only make it smaller or greater by placing heavy bodies near to, or remote from one another. The cause of this is easy to understand. Electrical quantities always exist in positive and negative forms in equal parts so that their algebraic sum is constantly *zero*. In consequence of this it is possible to produce any desired quantity of electricity without violation of the law of the conservation of capacity, since its total quantity remains zero. The corresponding factor in the energy of gravitation, however, is proportional to the mass and has therefore necessarily a positive value which can be created or changed just as little as the mass itself. At the present time it cannot be predicted with certainty whether or not, in the complete analysis of life, such factors will be discovered which cannot be created. From the circumstance, however, that life can be voluntarily destroyed it seems to me fairly probable that its voluntary creation is made impossible only by techincal and not fundamental difficulties.

What, then, are these difficulties? This question has already been often answered. The difficulties consist in the fact that the most simple organism is a very complex structure, in which numerous different reactions go on side by side, so that they afford one another mutual support in the vital purpose of self-maintenance, etc. For this purpose many things are necessary, especially that the velocities of these reactions should correspond with one another so that they may act together to accomplish the end in view. A machine would break itself to pieces if the movements of

all its parts did not succeed one another at equal periods and at the right time. In this instance the problem is solved by having the different parts bound in a fixed relation with one another so that no other motions except those which are intended are possible. Such compulsory combinations of chemical processes are perhaps also present in the living organism; they occur, for example, if in the alimentary canal the materials provided for the necessary reactions are secreted in different parts of the canal and become mixed with previously prepared chyle by being moved along with it in one direction; but with regard to an individual cell such a mechanical solution of the problem is not very probable. Moreover, in the living organism the same task is usually accomplished in very different ways according to conditions.

The further means of accomplishing the same purpose is the *regulation of the velocities of reaction* by means of catalysers or enzymes. The occurrence of such substances in the various parts of the organism was recognized by Berzelius. He, and later on Ludwig, expressed the opinion that the enzymes play a general and very important rôle in the organism. Later investigations have confirmed and extended this idea. There seem to be in reality only a few tissues in which enzymes are not present, and usually a large number of them appear together. While these older investigators in the light of the scientific knowledge of that time, ascribed to enzymes the property of actually causing reactions and consequently of creating certain materials, we are now in a position to broaden this conception and make it more comprehensive since we know that the enzymes have also the power of regulating the *velocities* of the reactions. That there may exist in a sense a fixed connection between the action, enzymes is shown, for example, in the later investigations in reference to the germination of seeds. In this process there appear in succession the enzymes of the solution of starch, of oxidation, and of assimilation. The sequence of their appearance, their

quantity, and the place in which they appear, are such that the process of development takes place everywhere in the young plant regularly and purposefully.

In this connection there arises a problem of fundamental importance which formerly has not been placed in the realm of biology, since the necessary foundation of general chemistry has been acquired only in late years, namely, the problem of the *time sequence* of processes in the organism. The spatial sequence has been shown to us by the microscope, and I must describe to you, at least the rôle which this instrument has played. Biology has for a long time concerned itself with certain problems of time relationship, especially those connected with embryology. But microscopy in relation to time, the analysis of that which takes place at each instant during life, especially the time microscopy of chemical processes, presents a problem for the solution of which very little evidence has been presented. It is, however, a problem which must be solved if we wish to go earnestly into the solution of the deeper problems which life presents to us.

Where and how these problems are to be attacked will probably be better known by you than by myself. Probably the best method will be to approach them from the most diverse points of view since as a whole they are of inconceivable complexity. Since I myself have never concerned myself with the problems of biology I cannot venture to offer suggestions to the workers in that science. The only thing which I can do is to indicate the general points of view which come to light in the consideration of the general study of science. The problem lying before us of the coördination of a large number of different phenomena to form a stationary unit scarcely existed in the sciences developed before chemistry; and when such a combination was made it was mainly by means of addition or superposition, that is, the whole series of phenomena related to the point in question was considered as the sum of the individual factors. In this way each of these factors played its

own part as though the others were not present. Thus sound waves cross one another in a most complex way without becoming confused, and in the same way two or three or more rows of waves may play over the surface of the sea in different directions and each one retains its own arrangement and its own characteristics. But here one sees already the limitations for the applications of this principle. When a large wave breaks the smaller ones vanish in the disturbance of the surface and are never seen again. This is due to the fact that the waves are stable structures only up to a certain limit; if this limit is overstepped the forms of energy which are present are converted into other forms, and the principle of superposition no longer gives a satisfactory explanation of what happens.

This reaction of which we have just spoken is universally present in organisms. Small changes in one factor of a given condition will bring about proportionately small changes in other factors, but only in the rarest instances will a superposition be evident. When one allows a string to vibrate, a change in temperature will bring about a change of the pitch, but this is simply due to a change in the elasticity of the string, and in the determination of this factor lies the solution of the problem. If the temperature of an organism be raised there occurs not only the corresponding change in the physical properties of the tissues, but at the same time changes are brought about in the velocity of the reactions of all chemical processes which take place in the organism, and indeed each reaction is influenced in a different way. By this means the relation which these reactions hold to one another is changed, and it may happen that through slight influences of this sort in any one place the limit is overstepped within which the organism remains a stationary structure. In such a case death results. It seems to me that there is no doubt that, as I suggested many years ago, the remarkably accurate and finely adjusted self-regulation of the higher mammals, by which they become converted into thermostats of

unusual constancy, has its origin in the necessity of keeping constant the relation which exists between the velocities of the chemical reactions, in order that the processes of life may take a normal course. In this *problem of co-ordination* it seems to me that the most important side of biology lies, namely, the part which has to do with time relations. Here also are present the phenomena which require the formation of concepts of a new sort for their intellectual conquest; concepts which are not necessary in the more general sciences. In these fields, biology will rule by itself, though still not independently of chemistry and physics. It must exert its influence on the other hand, within the limits of empirical possibility laid down by the latter sciences. These limits and conditions, however, the biologist must know and respect, if he wishes to solve his problem. He must be familiar with the ways and means of general chemistry and physics in order to gain an idea of the ways and means of the living organism. This leads us again to the main question on account of which we have undertaken this whole discussion, namely the question: How does the wind now blow upon the sea of science? The answer is as we have already said, towards *synthesis*. The fairest and richest results are to be expected in that place where the various sciences reach out towards one another for mutual help, and you see therefore, how it is that I have been able to predict for our ship a most fortunate voyage. The course which seemed best when observed from the highest standpoint to which I could attain is the same as that which the pilot of this ship has already held for many years. He needs only to steer his accustomed course in order to gain the best which one may hope for. Thus it only remains for us to wish him and his crew a pleasant journey.

THE LIMITATIONS OF BIOLOGICAL RESEARCH.*

JACQUES LOEB.

The opening of a new laboratory which is preëminently intended for scientific research is an event in which everybody may rejoice and which no one need regret; for it is the function of all scientific research to increase the possibility and value of life. Not only the University but the whole community may feel grateful to those whose generosity has made the laboratory possible. I may be pardoned for adding an expression of my personal gratitude to President Wheeler and Mr. Howard who have shown the greatest consideration for my wishes in regard to the building of the laboratory. I also wish to express my thanks to my colleagues Mr. Fischer and Mr. Cory for the help I have received from them. Last, but not least, our thanks are due to Professor Ostwald. The fact that he has come here to dedicate a new laboratory is perhaps the greatest distinction which could have been bestowed upon the University by the scientific world. But his presence here today means more to us than this. It is being recognized that the economic, hygienic and intellectual progress of a nation depends directly or indirectly upon the results of scientific research. American universities are just taking their first steps towards giving research that

* Address delivered at the dedication of the Rudolph Spreckels Physiological Laboratory of the University of California, August 20, 1903.

place which it has occupied for several generations in European and especially in German universities. If one of the recognized leaders of scientific thought and research in the Old World is willing to interrupt his work and participate in the inauguration of a laboratory on the Pacific Coast, we may be sure that the new departure of American universities has won for this country the sympathy of the best and therefore the real representatives of the European nations.

It is customary to indicate on an occasion like this the general direction and tendencies of the work which will be carried on. I need not dwell upon the importance of physical chemistry for physiological problems as I have often discussed this before. It is realized by all biologists that the source of energy in life phenomena is chemical, while many of the manifestations of life are physical in character. From this alone it is evident that physical chemistry must form the foundation of biology.

It is clear that the more fundamental the problems are which a laboratory undertakes the more it may hope to accomplish, but it is also true that at each period the number of tasks which might be undertaken successfully is limited. What we call the explanation of a phenomenon is according to Mach the possibility of presenting it as an unequivocal function of those variables upon which it depends. Each generation can hope to solve successfully only those scientific problems whose variables it adequately knows and controls.

One of the fundamental problems of biology is to find a definite answer to the question whether or not it is possible to make living matter out of dead matter. No one has thus far succeeded in transforming dead matter into living matter, and no one has thus far observed the spontaneous generation of an organism in nature. In consequence of this fact Arrhenius assumes that living matter has eternally existed, and has been carried through the universe from star to star in the shape of extremely minute particles, such

as spores, at or below the limit of microscopic visibility. He has calculated that electrical charges of these particles and radiation pressure suffice to bring about a transmission of living particles from one star to another in a comparatively short time. On the other hand, however, we are warned by a number of reasons not to be too hasty in assuming the impossibility of abiogenesis. As far as we know the substances found in living organisms are chemically well characterized and can be obtained outside of living organisms. Moreover, the growth of an animal or plant from a microscopic germ to its adult state depends upon a constant transformation of dead matter into living matter. Did this transformation not occur constantly in all living beings no living organism would be left today. As far as the dynamics of this transformation of dead matter into living matter inside an organism is concerned we know that no other specific agencies are involved than enzymes. The action of enzymes, however, does not seem to differ in any way from the action of inorganic catalytic agencies. I do not think it too bold to prophesy that the general physico-chemical character of these enzymes will sooner or later be cleared up. As regards the oxidizing enzymes the goal seems to be already in sight.

In going over in detail all the features of life phenomena we find that many of them can either be imitated in inorganic nature in all their details, or can be controlled unequivocally by physical or chemical means. In fact this is the case to so great an extent that it almost causes surprise that the experimental transformation of dead matter into living has not been accomplished. But we must consider the fact that the peculiar complex of physical conditions which we call the structure of living organisms is absolutely essential for life phenomena. If an organ, a brain for example, be ground to a pulp its function ceases. When the kidney is ground to a pulp it loses the power of transforming benzoic acid and glycocoll into hippuric acid, provided all the cells are destroyed. From this the conclu-

sion was drawn that possibly all the synthetical processes of an organism depend upon the normal structure of the tissues. This certainly goes too far, for we now know that soluble enzymes which can be extracted from the tissues, for example lipase, not only accelerate hydrolytic but also synthetical processes. But it can not be denied that the physico-chemical peculiarities which we call the structure of the living tissue form an essential part in the complex conditions which determine life phenomena. In regard to the question of abiogenesis the biologist is therefore placed before two possibilities. Biologists will either succeed through a series of discoveries in transforming dead matter into living matter, or they will finally discover that there is as definite a discontinuity between dead matter and living matter as there is between two chemical elements.

Another problem of transformation faces the modern biologist, namely, that of transforming one species into another. If living organisms have arisen from dead matter the first forms of living matter must have been simple in structure, and perhaps not more complicated than spores. If living germs are as old as cosmic matter the transportation of germs from star to star is only imaginable if the germs were extremely small and consequently simple in structure. In either case it is necessary to assume that the present fauna and flora of the earth must have developed from structures of no higher degree of differentiation than, for example, spores. If an investigator were asked today which he considered more difficult, to make a highly organized plant or animal from the spores of a fungus, or to make a spore from dead matter, I am afraid he would hesitate to decide. Yet a majority of investigators have been convinced since the days of Lamarck and Darwin that such an evolution must have occurred. We are better off in regard to our observations concerning evolution than in the question of abiogenesis, for there can be no doubt that hereditary transformations, within narrow limits at least, have occurred. I need only

mention the positive observations of DeVries. But all the variations which have thus far actually been observed are extremely slight, so that it is still difficult to grasp an evolution from cosmic spores or protoplasmic material of the simplest structure into such highly developed machines as human beings. As far as I am aware no one has yet found a method of bringing about a rapid variation in animals or plants. I am inclined to believe that this failure is at least partly due to the existence of mechanisms of regulation. We know that our body possesses automatic regulators to keep our temperature constant, that there are automatic regulators for keeping the concentration of sugar in the blood tolerably constant, etc. Any too sudden and extensive change in an organism probably interferes with these automatic mechanisms, and therefore leads to the destruction of the organism. We again meet with two possibilities: we shall either succeed by a series of continued slight changes in one and the same form in bringing about a large transformation from the original form, or we shall obtain the result that in each form the possibility of evolution is limited, and that, at a certain point, the constancy of a species is reached. Either result if guaranteed by adequate observations will be a welcome discovery.

Before closing allow me to make one additional remark. It is quite common to find that even scientists are inclined to assume that the restrictions or limitations to research in biology are greater than, or of a different order from those in the field of physics or chemistry. This is not true so long as we treat biological problems in the same unbiassed and unprejudiced way in which we deal with the problems of physics and chemistry. The alchemists tried to solve the problem of perpetual motion and of making gold. No one, however, would say that the physicist or chemist is limited in his search for truth because perpetual motion is impossible and the chemical elements are constant. On the contrary, it is fully recognized that the discovery of such constants as the quantity of energy of a closed system or

the chemical elements were the most fertile discoveries ever made, and, in fact, are among the pillars on which not only modern physics, chemistry and biology, but indirectly our whole modern civilization rests. Why should we change our attitude when we leave the field of biology, and why should we consider it a restriction or limitation of knowledge if it should turn out—which is far from certain, however,—that it is no more possible to transform dead matter into living matter than to transform copper into gold?

UNIVERSITY RECORD.

VICTOR HENDERSON.

IN MEMORIAM—PRESIDENT MARTIN KELLOGG.

The death of President Martin Kellogg closes the first chapter in the history of the University of California. He alone of the Academic Senate had served the University from its beginning. For forty-four years his life was consecrated to the up-building of the University whose spiritual foundation-stones he had helped to lay. Only one man was numbered before him on the academic roll—Henry Durant, first President of the University, and it was on the same day that President Durant was chosen Professor of the Latin and Greek languages—August 13, 1859—that Dr. Kellogg was appointed Professor of Mathematics in the old College of California.

The best ideals and traditions of New England were embodied in President Kellogg's mind and heart and life. Born in Vernon, Connecticut, on March 15, 1828, he graduated from Yale in 1850 and received the degree of A.M. in 1853. He was married on September 3, 1863, to Louise Wells Brockway, who survives him. Early in the American occupation of California he came to preach the gospel in the new land where for half a century he was to toil mightily for all good things. It was while serving as pastor of the Congregational Church at Grass Valley that he was called upon to share in the founding of the College of California.

Upon the chartering of the University of California by the State, Dr. Kellogg became the earliest member of the Academic Senate, for on September 1, 1868, he was made Professor of Ancient Languages. The Classical Department was divided in 1876, and he became Professor of the Latin Language and Literature. For fifteen years Dr. Kellogg was called upon for constant administrative work in the capacity of Dean. He first became executive head of the University in 1888, when, during the interval between the resignation of President William T. Reid and the coming of President Edward S. Holden, he served as Chairman of the Academic Faculty. Upon the resignation of President Horace Davis in 1890, the Academic Senate chose Professor Kellogg as its temporary President. The Regents concurred in this action and assigned to him the duties of President of the University with a seat in the Board. On January 24, 1893, he was formally elected President and on March 23, 1893 — Charter Day — he was inaugurated. In the spring of that year he was summoned by Yale University to receive the degree of LL.D. In 1899 Dr. Kellogg resigned the Presidency. After a year's journey around the world by way of Japan, Ceylon, Egypt, and Europe, he returned to Berkeley as Professor Emeritus of Latin. Throughout the years since then he has taught to new generations of students his well-loved Cicero, Horace and Quintilian. Through forty-four years of service his thought and faith and purpose have been wrought into the very substance of the University.

IN MEMORIAM—PROFESSOR JOHN HENRY DYE.

John Henry Dye, Assistant Professor of Civil Engineering, not for long a member of the University, but quickly entrenched in its honor and affections, died in Oakland on April 29, 1903, after several months of illness. Professor Dye was born in Marion, Iowa, December 18, 1871. Up to his fourteenth year he was a school-boy in Geneva, Switzerland; in 1890 he graduated from the High School

in Washington, D. C.; and in 1895 he received the degree of Bachelor of Science in Civil Engineering from the University of Michigan. As an undergraduate he was one of the best athletes of his time, and his personal popularity was attested by his election to the presidency of the Engineering Society of the University of Michigan.

The King of Corea summoned Mr. Dye, immediately upon his graduation, to become the royal Civil Engineer. He joined in Seoul his father, a distinguished soldier—William McE. Dye, Brevet Brigadier-General in the United States Army, a graduate of the United States Military Academy, throughout the Civil War Colonel of the Twentieth Regiment of Iowa Volunteers, and four times brevetted for gallantry. After serving as Colonel of Staff in the Khedive's Army throughout the Abyssinian campaign General Dye had been called to Seoul by the King of Corea to reorganize the military forces of the kingdom as General-in-Chief of the Corean army. As Civil Engineer to the King of Corea Professor Dye built additions to the royal palace, bridges, roads, and drainage canals, and surveyed a railway from Seoul to its seaport of Chemulpo. The life of father and son was full of romantic circumstance. On one occasion these two brave men, aided only by a remnant of the company of household servants, withstood for two weeks a siege of the palace by a mob of revolutionists.

After the death of General Dye in 1899, Professor Dye refused a call to the faculty of the University of Michigan, and went instead to the University of Nevada to take charge of its Department of University Extension in Mining, at Virginia City. He accepted a call to the University of California in July, 1901. On August 1, 1901, at Holly Springs, Mississippi, he was married to Miss Pearl Walter, the daughter of Mr. Harvey W. Walter of Mississippi.

Here Professor Dye had charge of the field work in surveying and of the summer school of Civil Engineering. He gave instruction also in sanitary, water supply, and

municipal engineering, and in railway engineering office practice. During his stay in Berkeley he received a number of calls to other universities and to scientific posts in the service of the United States, but he preferred to stay here and to develop the possibilities of his California position.

THE GREEK THEATRE.

Since the class of '94 established the precedent by its "Vehmgericht," it has been annual custom for the graduating class to present an open-air spectacle on Class Day afternoon in the fine natural amphitheatre long known, from its discoverer, as "Ben Weed's Amphitheatre," hidden in the eucalyptus grove against the lower slopes of the Berkeley hills. The great need of an auditorium for academic festivals suggested the erection of tiers of seats on the natural slopes. Sketches of several plans for such a development of the rarely favorable site were shown to Mr. William R. Hearst. Mr. Hearst at once chose the finest and most ambitious plan and expressed his willingness to bear all the necessary expense—some forty thousand dollars. Professor John Galen Howard had conceived the happy idea of realizing the possibilities of the place by building there an open-air theatre, modeled after such a Dionysion as that of Epidaurus, a type more beautiful in form and for seeing and hearing better than any theatre man has yet devised, and developed by the Greeks for just such a climate and just such natural surroundings as those of the University of California. Under Mr. Howard's hand has risen a noble structure, satisfying in its dignity and restful charm. While it is archaeologically correct, and while in its proportions it resembles the theatre at Epidaurus, it is in no way a slavish imitation of any Greek original, but a genuine response to need, sympathetic no less with nature than with tradition.

Overhung by a grove of lofty eucalyptus trees, the theatre leans against the high hill slope. The auditorium is semicircular in form, two hundred and fifty-four feet in

diameter, and divided into two concentric series or tiers of seats. The first series is arranged about a level circle, fifty feet in diameter and six feet below the stage, which corresponds to the space anciently devoted to the chorus. Beyond this circle the succeeding rows of seats rise gradually until the stage level is reached at a circle marked architecturally by a broad aisle termed by the Greeks the diazoma. Beyond the low wall which protects the outer side of the diazoma, the seats rise up more steeply, approximately at an angle of thirty degrees, to the outer limit of the theater. In this "theatron" seven thousand spectators can be seated comfortably, and each will fancy his own ledge best of all for seeing and hearing.

The auditorium is fronted on the west by a magnificent stage, a hundred and thirty-three feet wide and twenty-eight feet deep, entirely open toward the theatron, but closed in on the other three sides by a wall forty-two feet in height. This wall—the ancient skene—is enriched by a complete classic order of lofty Doric columns, with stylobate and entablature. The ends of the side-walls toward the auditorium form two massive pylons. Five openings pierce the stage walls. In the center is the "royal door" of the ancients, flanked by minor doors at right and left, and in the return walls at either end of the stage are massive doorways to the "strangers' house."

The entire building is of Portland cement concrete. The final detail of the stage wall, including mouldings, capitals, metopes and triglyphs, cornices and architraves, has been executed by hand in cement.

COMMENCEMENT WEEK.

The new Greek Theatre was used for the first time, though then not more than one-third completed, in Commencement Week of 1903, for the Class Day spectacle and for the Commencement exercises. The theatre even in its unfinished state proved most successful acoustically, for convenience in handling a vast crowd, and for unobstructed

hearing and seeing for every member of the audience. The formal dedication took the form of a dramatic festival of several days duration.*

The Commencement Address was delivered on May sixteenth by Theodore Roosevelt, President of the United States. After being admitted to the fellowship of the University as Doctor of Laws, President Roosevelt delivered a high appeal to right living, private and civic.† The military commissions were awarded by Governor George C. Pardee, '79, and the medal conferred upon Miss Mary Edith McGrew of the College of Letters. The student speakers were Robert Sibley of the College of Mechanics; Allan Pomeroy Matthew of the College of Letters; and Jesse Henry Steinhart, '01, of the Hastings College of the Law.

The participation of the earliest living graduate of the University, Rev. Albert Franklin Lyle, '64, was a notable feature of Commencement week. Mr. Lyle officiated as chaplain at Commencement, he spoke at the annual alumni luncheon in the Harmon Gymnasium, immediately after the Commencement Exercises, and he delivered an address at the annual reception of the Alumni Association at the Mark Hopkins Institute of Art.

The Annual Public Address before the Phi Beta Kappa Society was delivered by Professor H. Morse Stephens, his subject being "Historic Atmosphere;" the society just before the address received Professor Stephens into membership, as also Professor Charles Montague Bakewell, '89, and Professor Adolph Caspar Miller, '87,—the only alumni thus honored save Dr. Herbert Charles Moffitt, '89, so chosen two years ago. The Baccalaureate Sermon was preached by Frederick W. Clampett, Rector of Trinity Episcopal Church in San Francisco. The annual French Lectures, provided by the kindness of Mr. James H. Hyde

*The addresses at the opening of the dedication ceremonies and an account of the dramatic festival will appear in the next number of the *Chronicle*.

†President Roosevelt's address will be found on another page of this number of the *Chronicle*.

and Mr. Charles B. Alexander of New York and Prince A. Poniatowski of San Francisco, were delivered by Monsieur Léopold Mabilleau of Paris, Director of the Musée Sociale.

DEDICATION OF THE PHYSIOLOGICAL LABORATORY.

The Spreckels Physiological Laboratory, the gift of Mr. Rudolph Spreckels of San Francisco, was dedicated on August 19th with public exercises in the Harmon Gymnasium. The equipment of the building was given by Dr. M. Herzstein and Mr. Spreckels, and Mrs. William H. Crocker provided the nucleus of a physiological library. The Dedication Address, delivered by Professor Wilhelm Ostwald of the University of Leipzig, as also the address given by Professor Jacques Loeb, head of the department of Physiology, will be found elsewhere in this number. After the exercises the newbuilding was thrown open for inspection.

The distinguished chemist who had come so far to share in the inauguration of the new laboratory, was made heartily welcome during his stay in California. Dinners or lunches were given in his honor by Dr. Herzstein, by the University Club of San Francisco, by the California Section of the American Chemical Society, by President Wheeler, and by Professor Loeb. A reception was given for him by the Faculty Club and he was elected to honorary membership; he was entertained at Stanford University, he was the guest of Mrs. Hearst at the Hacienda, and upon the eve of his departure the Academic Senate assembled in special session and adopted an address in expression of appreciation of his coming.

Professor Bernard Moses was welcomed home at the University Meeting of August twenty-eighth, after three years of absence from his chair of History and Political Science and three years of fruitful public service as a member of the United States Philippine Commission. The same University Meeting was a farewell to Professor Kendrick Charles Babcock, who, after seven years of high service to the University as teacher, as school examiner, and as wise coun-

sellor, fellow-worker, and friend of the students, goes forth to become President of the University of Arizona. Another heavy loss to the Department of History is the resignation of Dr. Gaillard T. Lapsley, Assistant Professor of History, who in May accepted a call to the University of Pennsylvania. Mr. Robert Sibley, '03, on September 15 resigned from the Department of Electrical Engineering to become Professor of Mechanical Engineering and head of the department in the University of Montana.

SUMMER SESSION.

The Summer Session of 1903, from June twenty-fifth to August fifth, brought together 859 students, of whom 46.56 per cent. were men and 53.44 per cent. women. The enrollment was greater by twenty-nine than for the Summer Session of 1902. The average age of the students was 26.8 years, but the limits were sixteen and seventy-six years. Of the 859 students, 163 were under twenty-one years of age. Sixty-eight were graduates of the University of California, twenty-five of Stanford, ninety-three of other colleges, and ninety-three of normal schools, while of the rest three hundred and ninety-eight were graduates of High schools and twenty-five of academies.

The occupations represented were most various. There were no less than three hundred and sixty-nine teachers enrolled. There were sixteen superintendents of schools, four stenographers, three collectors, surveyors, housekeepers, and reporters, two clergymen, miners, civil engineers, and real estate agents; a playwright, an editor, a mail-carrier, a railroad fireman, an osteopathic practitioner, a draughtsman, a steam engineer, a violin teacher, a pianist, a lawyer, a milliner, a photographer, a farmer, a laundry agent, a cattle man, an insurance agent, a pharmacist, a trained nurse, an electrician, a physician, a millman, a boarding-house keeper, an entomologist, and a college president. There were two hundred and sixty-four students of the University of California, sixty-one Stanford students,

eleven students from other colleges, and twenty-seven students from high schools.

Of the 859 summer students, 759 gave California as their residence; six were registered from other countries, and ninety-four from American states other than California. Save for California the states most numerously represented were Washington with eighteen, Oregon with fifteen, Utah with twelve, Arizona with nine, Idaho with seven, Colorado with five. There were four each from Texas and Hawaii, three each from Illinois and New Mexico, two from Iowa, Missouri, Nevada, and Michigan, and one apiece from Ohio, New York, Kentucky, Minnesota, Kansas, and Massachusetts. Of the foreign-comers, three were from Japan and one each from Canada, Germany, and Mexico.

Of the 759 residents of California, 314 were from Alameda county, 115 from San Francisco, sixty-two from Santa Clara county, forty-four from Los Angeles county, eighteen from Fresno, fifteen from Tehama, fourteen from San Bernardino, thirteen from San Diego, eleven each from Solano and Santa Barbara, and eight from Tulare and Merced. Only nine of the fifty-four California counties were unrepresented—Alpine, Del Norte, Eldorado, Lake, Lassen, Modoc, Plumas, Sutter, and Tuolumne.

The Summer Session programme was carried out as announced, save that Mr. Gifford Pinchot, Forester of the United States Department of Agriculture, was unable to reach California before the close of the Summer Session, and so gave his promised lectures in September instead of before a summer audience, and save for the much-regretted withdrawal of Professor Angell, who was forced by illness to give up his work. His courses were carried to completion by Professor Stratton.

Dean Richardson arranged a number of University Meetings, public lectures, excursions, and opportunities for recreation, which added much to the pleasure and profit of the summer students. The Faculty Club played a very useful part in bringing visiting and permanent members of the faculty into pleasant companionship.

Four outposts of the Summer Session were the Marine Biological Laboratory at San Diego, under the direction of Professor Ritter; the Summer School of Forestry, conducted at Idyllwild near San Jacinto by Professor Willis L. Jepson and Professor A. V. Stubenrauch, with the assistance of Mr. T. P. Lukens of Pasadena; the summer lectures given by Dean Richardson, Professor Irving Stringham, Professor W. S. Ferguson, and Professor Chauncey W. Wells at the College of Notre Dame in San Francisco for the teachers of the various branches of that institution; and the Summer School of Surveying near Monterey.

Professor Ritter was especially gratified by the outcome of the summer's work at San Diego. The natural conditions were found unusually favorable. No undergraduate instruction was offered, but attention was concentrated upon research, with study of the plankton as the special object. Professor William E. Ritter investigated the tunicata and enteropneusta, Professor C. A. Kofoid and Mr. John F. Bovard worked upon the protozoa, Dr. Harry B. Torrey on the coelenterata, Mr. Calvin O. Esterly on the copepoda; Dr. Anton J. Carlson of Stanford on the comparative physiology of the invertebrate heart; Professor B. M. Davis of the Los Angeles Normal School on the flotation of marine organisms; Miss Marian Hubbard on the protochordates, and Miss Margaret Henderson on the jelly-fishes and polyps, while Mr. H. M. Evans carried on hydrographic observations.

This summer research work in zoölogy was made possible by the generous aid of Mr. E. W. Scripps, Miss Ellen Scripps, Mr. Homer H. Peters, Mr. E. S. Babcock and the Coronado Beach Company, Mrs. Fannie Keating, Mr. U. S Grant, Jr., Mr. George W. Marston, Mr. W. E. Clayton and the San Diego Electric Railway Company, Mr. W. H. Putnam, Dr. Fred Baker, Mr. H. P. Wood, and the San Diego Chamber of Commerce. The Chamber of Commerce has offered to provide funds for the continuation of the work during the coming Christmas vacation.

RHODES SCHOLARSHIPS.

The terms for the award of the Rhodes Scholarships, as now announced by the Rhodes Trustees, provide that the Rhodes Scholarships for California shall be administered by a committee consisting of President Wheeler as chairman, President Jordan, and Professor E. C. Norton, Dean of Pomona College. The scholarships are to be awarded in rotation, in proportion to the number of students of Greek, to students of California, of Stanford, and of the smaller colleges of the State considered as a group. The recommendations made to the Rhodes Trustees by the Pacific Coast conference held at the time of Principal Parkin's visit correspond closely to the plan eventually adopted by the Rhodes Trustees. Candidates must be unmarried and not over twenty-five years of age; they must have reached at least the end of the sophomore year in some recognized university or college, and they must be prepared to pass the Oxford admission examination known as Responsions. This would imply, ordinarily, that the student must have continued the study of Greek throughout his sophomore year. Perfect health and fine physique are requirements for candidature.

All California candidates are expected, during the month of January, 1904, to notify President Wheeler, as the chairman of the committee of selection, of their intention to present themselves for examination. At some time during the spring examinations will be offered from questions forwarded by examiners appointed by the Rhodes Trustees. These examination papers will be sent to the Rhodes Trustees for revision. A list of those who have successfully passed the test will as soon as possible thereafter be furnished to the California committee and from this list the local committee will choose the Rhodes scholars. The decision of this committee of selection as to eligibility is final. The examination held before the choice is made is not competitive, but is intended only to give assurance that all candidates are fully qualified to enter on the course of study at Oxford.

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THE HEART OF ETHICS.*

GEORGE HERBERT PALMER.

I cannot begin my address this evening without expressing my pleasure that you exist and that you have been kind enough to allow me to come before you. So far as I know you are unique, the only case of yourselves which the development of philosophy in our country can show. It is certainly desirable that philosophy should be accounted no mere academic interest, but the concern of all human beings. Yet no other American university has been fortunate enough to secure a company of competent men and women pledged to follow up these grave inquiries and supplement the work of the class room. Of course peculiar university conditions have been necessary before anything of this kind could be accomplished. I know as well as you to how large an extent this happy result has been due to the exceptional character learning and enthusiasm of the remarkable head of the department of philosophy here. But I know too, with what steadiness, warmth and critical intelligence you have supported and enlarged his splendid work.

These peculiarities in you simplify my welcome task. Seldom does a scholar have an opportunity to address a company of scholars. Ordinarily our audience is but half instructed. In speaking to you to-night I can be sure that you will keep a sentence or two ahead of me, thus making

*An address before the Philosophical Union of the University of California, delivered August 21, 1903, by Professor George Herbert Palmer of Harvard University.

my discussion much more interesting, at least to me. I am secure of being understood, discharged too from an obnoxious part of the task which usually afflicts one who would lead a general audience to consider ethical questions. I can devote myself altogether to the scientific aspects of my theme, free from all need of hortation. You may be left simply as good as you now are, while I confine myself to explaining what it is to be moral. Philosophical inquiry rather than the invigoration of practical life will be our prime business to-night.

When I accepted the invitation to address you I saw that my subject must be drawn from my own special field of ethics, and that it must deal with no small or fragmentary moral question. This need of discussing what is central is indicated as well by the present situation in ethics as by the fact that I am to address a learned body. A momentous period it is in the history of any science when its followers begin to inspect its heart. In the early stages of every science the outlying parts attract undue attention. That has been the case with ethics at certain periods of the past. But in our time attention is concentrated as never before on its central principles. We philosophers are sometimes reproached with an indisposition to come to unity of belief. Of course where inquiry is active diversity must obtain. But I believe it may be said that to-day there is almost entire agreement as regards fundamental ethical formulæ. All scholars alike now find morality to be the aim at abounding life. The empirical schools tell us that it is the highest form of the struggle for existence; the idealistic, that it is self-realization. All accordingly find that it has to do with the advancement of life, the development of the self or person, and it is acknowledged that this curious being can never rest till he attains a completeness at present incalculable. Morality has thus ceased to be primarily repressive, and is now regarded as the amplest exhibit of human nature, free from every external precept however sacred. Man is the measure of morality and the development of himself his single duty.

But while agreement is so great as regards formulæ, these receive a wide variety of interpretation and lead to problems as urgent and intricate as those which puzzled our fathers. Who or what is the self? How far is he detachable from nature? How far from his fellow-men? Is his individuality an illusion and each of us only an imperfect phase of a single universal being, so that in strictness we must own that there is none good but one, that is God? These and kindred questions naturally oppress the thought of our time, yet all are but so many attempts to push the formula of self-realization into ultimate clearness.

To one of these consequential problems I address myself to-night, to the problem of self-sacrifice, that one which seems to me to conduct us farthest into the heart of ethics. For when we have accepted self-realization as our supreme aim we have brought ourselves into seeming conflict with one of our profoundest moral instincts. Are the two compatible? Can he who is devoted to self-culture consistently sacrifice himself? And if not, must not the formula of self-realization accept modification? Certainly all men accord to self-sacrifice, as to nothing else, the distinctively moral response of reverence. Intelligence, skill, beauty, learning —we admire them all; but when we see an act of self-sacrifice, however small, an awe falls upon us. We bow our heads, fearful that we might not have been capable of anything so glorious. We thus acknowledge self-sacrifice to be the very culmination of the moral life. But how does it accord with self-development? Is there not a kind of conflict between the two? Yet can we abandon either? This, then, is the problem on which I desire to turn your thoughts to-night— the possible adjustment of these two great claims, the claim to realize oneself and the claim to sacrifice oneself. And I shall most easily bring my theme before you if I state at once the four historic objections to the very possibility of self-sacrifice. I call them historic objections for they have appeared and reappeared in the history of ethics and have been worked out there on a great scale. While not

altogether consistent with one another, no one of them is unimportant, and together they compactly present those conflicting considerations which must be borne in mind when we attempt to comprehend the intricacies of self-sacrifice. I will accordingly state them briefly and sympathetically.

First, self-sacrifice is impossible. No man ever performs a strictly disinterested act. His own interest must be engaged before desire will start. We always act to accomplish something, and between that something and ourselves there must be felt some sort of connection. Every wish indicates that he who wishes feels a need which he believes might be supplied by the object wished for. It is true that wishes and wills may be directed upon external objects, but only so far as we believe that our own well-being is involved in their union with us. I devote myself to my friend, but this is because he is *my* friend, because his happiness and my own are inseparable. Were he so entirely a foreigner that I had no interest in him, my sacrifices would be meaningless. They acquire meaning only through my sense of a tie between him and me. My service of him marks my escape from petty selfishness into broad selfishness, from immediate gain into remote gain. But the prospect of gain in some form, ultimate or proximate, possibly gain of a subtle spiritual sort, always attends my wish and will. Self-realization, however hidden, is everywhere aimed at in action. Self-sacrifice in any true and thorough-going sense is psychologically impossible. No belittlement of ourselves can seem desirable. So cogent is this objection and so frequently has it appeared in ethical discussion that it may well be said that he who has not faced it and laid its truth to heart can have little understanding of self-sacrifice. But it is a blessed fact that multitudes who have understood self-sacrifice little have practised it largely.

A second objection regards sacrifice as a sad necessity. While there is nothing in it to be sought or approved, it is a lamentable fact that we are so crowded together and disposed to trample on one another that partially to escape we

must each agree to abate something of our own in behalf of a neighbor's gain. We cannot each be all we would. It is a sign of our mean estate that again and again we must narrow sections of our own good in order to save some other portion of it. By such compromises we are enabled to get along with one another. He who refuses them will find himself exposed to still greater loss. But the hard conditions under which we live are shown in the fact that such restraint is inevitable. I call it therefore a sad necessity. You will find this theory of self-sacrifice urged by Hobbes, and by the many later ethical writers who have followed his daring lead. I count it among the objections, because while it admits the fact of self-sacrifice it denies its beauty.

A third objection declares self-sacrifice to be needless. The very appearance of it rests on a misconception. It is a mistake to suppose that by abating our own for the sake of our neighbor we lose. On the contrary, this is our true mode of enlargement. The interests of the individual and of society are not hostile or even alien. Society is nothing but the larger individual, so that he alone realizes himself who enters into all social relations, making the well-being of society his own. We readily see this when we study the workings of a small and comprehensible section of society. Through identification with family life the child does not lose. This is his only way to realize himself. To assume contrast and antagonism between family interest and the interest of the child is unwarranted and absurd. Equally unwarranted is a similar assumption in the broader ranges of society. When we talk of sacrifice we refer merely to the first stage and outer aspect of the act. Underneath, self-interest is guarded; the individual giving up his individuality only through obtaining a larger individuality. Such identity of interest between society and the individual the moralists of the eighteenth century are never tired of pointing out. If they are right and the identity is complete, then sacrifice is abolished or is only a generous illusion. But these men never quite persuaded the English people of

their doctrine, at least they never carried their thought fully over into the common mind.

That common mind has always regarded self-sacrifice in a widely different way, but in one which renders it still more incomprehensible. This popular view I may state as my fourth and last objection: Self-sacrifice is a glorious madness. Though the only act which ever forces us to bow in reverent awe, it is still insolubly mysterious, irrational, crazy perhaps, but superb. For in it we do not deliberate. We hear a call, we shut our ears to prudence, and with courageous blindness to damage of our own we hasten headlong to meet the needs of others. To reckon heroism, to count up opposing gains and losses, balancing them one against another in order clear-sightedly to act, is to render heroism impossible. Into it there enters an element of insanity. The sacrificer must feel that he cares nothing for what is rational, that he cares only for what is holy, for his duty. The rational and the holy—in the eyes of the average man these two stand in harsh antithesis, and the antithesis has been approved by important ethical writers of our time. The rational man is, of course, needed in the humdrum work of life. His self-assertive and sagacious spirit clears many a tangled pathway. But he gets no reverence, the characteristic response of self-sacrifice. That is reserved for him who says, "No prudence for me! I will be crazy. Let me fling myself away, so only there comes salvation to others."

Such, then, are the four massive objections: Self-sacrifice is unreal psychologically, æsthetically, morally or rationally. But negative considerations are not enough. They are merely of value in clearing a field and showing where a structure cannot be raised. The serious task of erecting that structure remains. To it I now address myself.

What we need to consider first, then, is the reality and wide range of self-sacrifice. The moment the term is mentioned, there spring up before our mind certain typical examples. We see the soldier advancing toward the battle-

field to stake his life for a country in whose prosperity he may never share. We see the infant falling into the water, and the full-grown man flinging in after it his own assured and valued life in hopes of rescuing that incipient and uncertain thing, a little child. I saw the other day a powerful negro rush into the street and seize a runaway horse at the risk of his life in order that the crowd a little farther down the street might be unharmed. Such are some of the shining examples of self-sacrifice. But we mislead ourselves if we confine our thoughts to cases so climactic, triumphant, and spectacular. Deeds like these dazzle and do not invite full analysis of their nature. Let us turn to affairs more usual.

I have happened to know intimately members of three professions—ministers, nurses, teachers—and I find self-sacrifice a matter of daily practice with them all. To it the minister is dedicated. He must not look for gain. He has a salary, of course; but it is much in the nature of a fee, a means of insuring him a certain kind of living. And while it is common enough to find a minister studying how he may make money in his parish, it is commoner to find one bent on seeing how he can make righteousness prevail there, though it overwhelm him. The other professions do not so manifestly aim at self-sacrifice. They are distinctly money-making. They exact a given sum for a given service. Still, in them how constantly do we see that that which is given far outruns that which is paid for. I have watched pretty closely the work of a dozen or more trained nurses, and I believe it would be hard to find any class in the community showing a higher average of estimable character. How quiet they are under the most irritating circumstances! How fully they pour themselves into the lives of their patients! How prompt is the deft hand! How considerate the swift intelligence! Their hearts are aglow over what can be given, not over what can be got. A similar temper is widely observable among teachers, especially among those of the lower grades. Paid though they are for a certain

task, how indisposed they are to limit themselves to that task or to confine their care of their children to the school room! The hard-worked creatures acquire an intimate interest in the little lives and, heedless of themselves, are continually ready to spend and be spent for those who cannot know what they receive. Among such teachers I find self-sacrifice as broad, as deep, as genuine, if not so striking, as that of the soldier on the field.

Evidently, then, self-sacrifice may penetrate the institutions of ordinary life, being found even in occupations primarily ordered by principles of give and take, where it expresses itself in a kind of surplusage of giving above what is prescribed in the contract. In this form it enters into trade. The high-minded merchant is not concerned merely with getting his money back from an article sold. He interests himself in the thoroughly excellent quality of that article, in the accommodation of his customers, the soundness of his business methods, and the honorable standing of his firm. And when we turn to our public officials, how frequent it is—how frequent in spite of what the newspapers say—to find men eager for the public good, men ready to take labor on themselves if only the state may be saved from cost and damage.

But I still underestimate the prevalence of the principle, for it enters into the pettiest incidents of the day. As you walked here this evening did somebody stop you and say, "Can you tell me how I should go to Dwight Way?" And did you reply, "You must have made a mistake. I have no interest in Dwight Way. I think it is you who are going there; and why are you putting me to inconvenience merely that you may the more easily find your way?" Had you answered so, you know what he would have thought, and possibly have said, "These people in Berkeley are unlike the inhabitants of every other part of the globe." Everyone would be astonished at the man who declined to bear his little portion of a neighbor's burden. Our commonest acceptance of society involves self-sacrifice, and in all our

trivial intercourse we expect to put ourselves to unrewarded inconvenience for the sake of others.

What I have set myself to make plain in this series of graded examples is simply this: Self-sacrifice in not something exceptional, something occurring at crises of our lives, something for which we need perpetually to be preparing ourselves, so that when the great occasion comes we may be ready to lay ourselves upon its altar. Such romanticism distorts and obscures. Self-sacrifice is an every-day affair. By it we live. It is the very air of our moral lungs. Without it, society could not go on for an hour. And that is precisely why we reverence it—not for its rarity, but for its importance.

Perhaps we are now prepared to sum up our descriptive account and throw what we have obtained into a sort of definition. I will hereafter mean by self-sacrifice any diminution of my own possessions, pleasures or powers, in order to increase those of others.

But when we have defined the act, when we have thus assembled our omnipresent facts and set them in order for cool assessment, the enigma of self-sacrifice only appears the more clearly. Why *should* a man sacrifice himself? Why voluntarily accept loss? Each of us has but a single life. Each feels the pressure of his own needs and desires. These point toward self-realization. How then can I disinterestedly prefer another's gain? Each of us is penned within the range of his solitary consciousness, which may be broadened or narrowed but cannot be passed. It is incumbent on us, therefore, to study our own enrichment. Anticipating what might confirm or crumble our being, we should strenuously seize the one and reject the other. Deliberately to turn toward loss would seem to be crazy. What should a man accept in exchange for his life?

I answer that there must be reason for the act. To abandon the problem as does the popular objection, counting the action blind but still adoring it, is paradoxical. The distinctive characteristic of man is reason. While brutes

act blindly, while the punctual physical universe minutely obeys laws of which it knows nothing, usually it is open to man to know the path he will pursue. Shall we then say that, though reason is a convenience in all the lower stretches of life, when we reach self-sacrifice, our single awesome height, it ceases? I cannot think so. On the contrary, I hold that in self-sacrifice we have a case, not of glorious madness, but of somewhat extreme rationality. How then is rational contrasted with irrational guidance? As we here approach the central and most difficult part of our discussion, clearness will oblige me to enter into some detail.

When a child looks at a watch, he sees a single object. It is something there, a something altogether detached from his consciousness, from the table, from other objects around. It is a brute fact, one single thing, complete in itself. Such is the child's perception. But a man of understanding looks at it differently. Its detached singleness is not to him the most important truth in regard to it. Its meaning must rather be found in the relations in which it stands, relations which, seeming at first to lie outside it, really enter into it and make it what it is. The rational man would accordingly see it all alive with the qualities of gold, brass, steel—the metals of which it is composed. He would find it incomprehensible apart from the mind of its maker, and he would not regard that mind and watch as two things, but as matters essentially related. Indeed these relations would run wider still, and reason would not be satisfied until the watch was united to time itself, to the very framework of the universe. Apart from this it would be meaningless. In short, if a man comprehends the watch in a rational way, he must comprehend it in what I may call a conjunct way, the child might picture it as isolated and single, but it could really be known only in connection with all that exists. Of course we pause far short of such full knowledge. Our reason cannot stretch to the infinity of things. But just so far as relations can be traced between this object and all objects, so much the more rational does

the knowledge of the watch become. Rationality is the comprehending of anything in its relations. The perceptive, isolated view is irrational.

But if this is true of so simple a matter as a watch, it is doubly true of a complex human being. The child imagines he can comprehend a person too in isolation, but rational proverb makers long ago told us, "One person, no person." Each person must be conceived as tied in with all his fellows. We have seen how in the case of the watch we were almost obliged to abandon the thought of a single object and to speak of it as a sort of center of constitutive relations. A plexus of ties runs in every direction, and where these cross there is the watch. So it is among human beings. If we try for a moment to conceive a person as single and detached, we shall find he would have no powers to exercise. No emotions would be his, whether to love or hate, for they imply objects to arouse them; no occupations of civilized life, for these involve mutual dependency. From speech he would be cut off, if there were nobody to speak to; nor would any such instrument as language be ready for his use, if ancestors had not coöperated in its construction. His very thoughts would become a meaningless series of impressions, if they indicated no reality beside themselves. So empty would be that fiction, the single and isolated individual. The real creature, rational and conjunct man, is he who stands in living relationship with his fellows, they being a veritable part of him and he of them. Man is essentially a social being, not a being who happens to be living in society. Society enters into his inmost fibre, and apart from society he is not. Yet this does not mean that society, any more than the individual, has an independent existence, prior, complete and authoritative. What would society be, parted from the individuals who compose it? No more than an individual who does not embody social relationships. The two are mutual conceptions, different aspects of the same thing. We may view a person abstractly, fixing attention on his single center of consciousness; or we may view him conjunctly, attending to his multifarious ties.

Now what is distinctive of self-sacrifice is that it insists in a somewhat extreme way on this second and rational mode of regard. It is a frank confession of interlocking lives. It says, "I have nothing to do with the abstract, isolated, and finite self. That is a matter of no consequence. What I care about is the conjunct, social, and infinite self—that self which is inseparable from others. Where that calls, I serve." The self-sacrificing person knows no interest of his own separate from those of his father and mother, his wife and children. He cannot ask what is good for himself and set it in contrast with what is good for them. For his own broader existence is presented in these dear members of his family. And such a man, so far from being mad, is wise as few of us are. Glorious indeed is the self-sacrificer, because he is so sane, because in him all pettiness and detachment have been swept away. He appears mad only to those who stand at the opposite point of view, but in his eyes it is they who are absurd. In fact each must be accounted crazy or wise according to the view we take of what constitutes the real person.

I remember a story current in the newspapers during the Civil War. Just before a battle an officer of our army, knowing of what consequence it was that his regiment should hold its ground, hastened to the rear to see that none of his men was straggling. He met a cowardly fellow trying to regain the camp. Turning upon him in a passion of disgust, he said, "Do you count your miserable little life worth more than that of this great army?" "Worth more to me, sir," the man replied. How sensible! How entirely just from his own point of view, that of the isolated self! Regarding that alone, he was but a moral child, incapable of comprehending anything so difficult as a conjunct self. He imagined that could he but save this eating, breathing, feeling self, no matter if the country were lost, he would be a gainer. What folly! What would existence be worth outside that total inter-relationship of human beings called his land? But that fact he could not perceive. To risk

his separate self in such a cause seemed absurd. Turn about for a moment and see how absurd the separate self appears from the point of view of the conjunct. When our Lord hung upon the cross, the jeering soldiers shouted, "He saved others, himself he could not save." No, he could not, and his inability seemed to them ridiculous, while it was in reality his glory. His true self he was saving—himself and all mankind—the only self he valued. It is this strange complexity of our being, compelling us to view ourselves in both a separate and a conjunct way, which creates all the difficulty in the problem of self-sacrifice. This duality Emerson has in mind in his thrilling lines:—

> Let love repine and reason chafe,
> There came a voice without reply:
> 'Tis man's perdition to be safe
> When for the truth he ought to die.

Being thus rational, self-sacrifice may accordingly be said to be a powerful form of self-assertion. To miss this is to miss its essential character, and at the same time to miss the safeguards which should protect it against waste. For to say, "I will sacrifice myself," is to leave the important part of the business unexpressed. The weighty matter is in the covert preposition *for*—"I will sacrifice myself *for*." An approved object is aimed at. We are not primarily interested in neglecting ourselves. Only our estimate of the importance of the object justifies our intended loss. This object should therefore be scrutinized. Self-sacrifice is noble if its end is noble, but becomes reprehensible when its object is petty or undeserving. Omit or overlook that word *for*, and self-sacrifice loses its exalted character. It sinks into asceticism, one of the most degrading of moral aberrations. In asceticism we prize sacrifice for its own sake. We hunt out what we value most; we judge what would most completely fulfil our needs; and then we abolish it. Abolish it for what? For nothing but for the mere sake of abolishing. This is to turn morality

upside down; and in place of the Christian ideal of abounding life, to set up the pessimistic aim of impoverishment. There is nothing of this kind in self-sacrifice. Here we assert ourselves, our conjunct selves. We estimate what will be best for the community of man and seek to further this at whatever cost to our isolated individuality. By this dedication to a deserving object sacrifice is purified, ennobled, and made strong. We speak of the glorious deed of him who plunges into the water to save a child. But it is a foolish and immoral thing to risk one's life for a stone, a coin, or nothing at all. "Is the object deserving?" we must ask, "or shall I reserve myself for greater needs?" Too easily does our sympathetic and sentimental age, recklessly eulogistic of altruism, hurry into self-sacrifice. Altruism in itself is worthless. That an act is unselfish can never justify its performance. He who would be a great giver must first be a great person. Our men, and still more our women, need as urgently the gospel of self-development as that of self-sacrifice; though the two are naturally supplemental. Our only means of estimating the propriety and dignity of sacrifice is to inquire how closely connected with ourselves is its object. Until we can justify this connection, we have no right to incur it; for genuine sacrifice is always an act of self-assertion. In serving his regiment and contributing his share toward saving his country, the soldier asserts his own interests. He is a good soldier in proportion as he counts those interests his own; while the deserter is condemned, not for refusing to give his life to an alien country and regiment, but because he was small enough to imagine that these great constituents of himself were alien. I tell the man on the street the way home because I cannot part his bewilderment from my own. The problem always is: What may I suitably regard as my own? And in solving it we should study as carefully that for which we propose to sacrifice ourselves as anything which we might seek to obtain. Triviality or lack of permanence is as objectionable in the

one case as in the other. The only safe rule is that self-sacrifice is self-assertion, is a judgment as regards what we would welcome to be a portion of our conjunct self.

Perhaps an extreme case will show this most clearly. Jesus prayed, "Not my will but Thine be done." He did not then lose his will. He asserted and obtained it. For his will was that the divine will should be fulfilled, and fulfilled it was. He set aside one form of his will, his private and isolated will, knowing it to be delusive. But his true or conjunct will—and he knew it to be his true one—he abundantly obtained. It is no wonder, then, that in explaining these things to his disciples he says, "My meat it is to do the will of my Father." That is always the language of genuine self-sacrifice. The act is not complete until the sense of loss has disappeared.

Yet while I hold that self-sacrifice is thus the very extreme of rationality, centering as it does all worth in the relational or conjunct selfhood, I cannot disguise from myself that it contains an element of tragedy too. That my hearers will already have felt, and will have begun to rebel against my insistence that self-sacrifice is the fulfillment of our being. For though it is true that when opposition arises between the conjunct and separate selves our largest safety is with the former, the very fact that such opposition is possible involves tragedy. One part of the nature becomes arrayed against another. We must die to live. Our lower goods are found incompatible with our higher. Pleasure, comfort, property, friends, possibly life itself, have become hostile to our more inclusive aims and must be set aside. It is true that when the tragic antithesis is presented and we can reach our higher goods only by loss of the lower, hesitation is ruin. It is true, too, that on account of that element of self-assertion, to which I have drawn attention, the genuine sacrificer is ordinarily unaware of any such tragedy. But none the less the tragedy is there. To suppose it absent would strip sacrifice of what we regard as most characteristic.

Nor can we pause here. Those who would call self-sacrifice a glorious madness have still further justification. A leap into the dark we must at least admit it to be. For trace it rationally as far as we may, there always remains uncertainty at the close. There is, for example, uncertainty about ultimate results. The mother toiling for her child and neglecting for its sake most of what would render her own life rich can never know that this child will grow up to power. The day may come when she will wish it had died in childhood. The glory of her action is bound up with this darkness. Were the soldier, marching to the field, sure that his side would be victorious, he would be only half a hero. The consequences of self-sacrifice can never be certain, foreseen, calculable. There must be risk. Omit it, and the sacrifice disappears. Indeed nothing in life which calls forth admiration is free from this touch of faith and courage, this movement into the unknown. It is at the very heart of ethics.

But beside the unknown character of the result, there is usually uncertainty as regards the cost. The sacrificer does not give according to measure. I do not say I will attend to this sick person up to such and such a point, but when that point is reached, I shall have done enough. That will hardly be self-sacrifice. I rather say, "Here I am. Take me, use me to the full, spend of me whatever you need. How much that will be I do not know." So there is an element of darkness in ourselves.

And possibly I ought to mention a third variety of these incalculabilities of self-sacrifice. We do not plan the case. A while ago, meeting a literary man whose product is of much consequence to the community and himself, I asked him how his book was coming on. "Badly," he answered. "Just now an aged relative has fallen ill. There is no other place where she can be properly disposed, and so she has been brought to my house. I must care for her, my home will be much broken up, and my work must be set aside." I said, "Is that your duty? Have you not a more important

obligation to your book?" But he answered, "One cannot choose a duty." I did not fully agree. I think we should carefully weigh duties, even if we do not choose them. Morality would otherwise become the sport of accident. But I perceive that in the last analysis no duty is made by ourselves. It is given us by something more authoritative than we, something which we cannot alter, fully estimate, or without damage evade. Necessity is laid upon us, sometimes an invading necessity. We are walking our well-ordered way, pursuing some dear aims, when harsh before us stands a waiting duty, bidding us lay aside that in which we are engaged and take it. I have said I believe a degree of scrutiny is needful here. We should ask what for? We should correlate the new duty with those already pledged. And probably an interrupting duty is less often the one it is well to follow than one which has already had something of our time and care. Few fresh calls can have the weighty claim of loyalty to obligation already incurred. But after all, that on which we finally decide has not sprung from our own wishes. It subjects these wishes to itself. Standing over against us, it summons us to do its bidding and allows us no more to be our own self-directed masters.

Summing up, then, the jarring characteristics of self-sacrifice—its frequency, rationality, glory, peril, assertiveness; yes, and its darker traits of risk, immeasurability, and authoritativeness—does it not begin to appear that I have been calling it by a wrong name? Self-sacrifice is a negative term. It lays stress on the thought that I set myself aside, become in some way less than I was before. And no doubt through all this intricate discussion certain belittlements have been acknowledged, though these have also been shown to lie along the path of largeness. There are, therefore, in self-sacrifice both negative and positive elements. But why select its name from the subordinate part? Why turn to the front its incidental negations? This is topsy-turvy nomenclature. It would be well if the word self-sacrifice were blotted from our dictionaries.

Devotion, service, love, dedication to a cause, these words mark its real nature and are the only descriptions of it which practisers will recognize. That damage to the abstract self which chiefly impresses the beholder is something of which the sacrificer is hardly aware. How exquisitely astonished are the men in the parable when called to receive reward for their generous gifts. "Lord, when saw we Thee hungry and gave Thee meat, or thirsty and gave Thee drink? When saw we Thee sick and in prison and visited Thee?" They thought they had only been following their own desires.

Perhaps the most admirable case of self-sacrifice is that in which no single person appears who is profited by our loss. The scholar, the artist, the scientific man, dedicate themselves to the interests of undifferentiated humanity. They serve their undecipherable race, not knowing who will obtain gains through their toils. In their sublime benefactions they study the wants of no single person, not even of themselves. Yet turn to a man of this type and try to call his attention to the privations he endures, and what will be his answer? "I have no coat? I have no dinner? I have little money? People do not honor me as they honor others? Yes, I believe I lack these trifles. But think what I possess! This great subject; or rather, it possesses me. And it shall have of me whatever it requires."

It is to a company of such scholars that I speak tonight. Many among you have undertaken the task of tracking shy truth. Setting aside beliefs to which as isolated individuals you may well be attached, you seek after that possible harmony of all minds to which we give the name of right reason. Justly therefore it may be said of you that you try not to think your own thoughts nor to speak your own words. In such service of the absolute is found the highest expression of self-sacrifice, of social service, of self-realization. The doctrine that through union with a reason and righteousness not exclusively our own each of us may hourly be renewed is the very heart of ethics.

THE ATMOSPHERE OF THE PAST.*

H. Morse Stephens.

Mr. President, Members of the Phi Beta Kappa, Ladies and Gentlemen:

In speaking before you this morning I am exceedingly conscious of the high honor conferred upon me in being asked to deliver an oration in behalf of and before the Phi Beta Kappa Society. All those who are at all acquainted with the history of American literature and with the work of the great makers of American literature, appreciate what has been accomplished through the initiative of this society. As I have already said, I appreciate highly the honor and opportunity of appearing before it and as its orator on this occasion, but when it came to the matter of the choice of a subject I felt that there was some difficulty in selecting a topic which would at once lie within the limited sphere of my own work and at the same time appeal to a general, but scholarly audience. It was only after hesitation and careful thought that I ventured to select as my subject this morning "The Atmosphere of History," and one of the things which led me to this choice was that I have been held up in a somewhat conspicuous fashion as a champion of the scientific school of history.

To those who labor to discover the truth, in addition to long and assiduous labor, there is needed for a right

*A stenographic report of an address delivered by Professor H. Morse Stephens before the Phi Beta Kappa Society of the University of California, at Berkeley, May 13, 1903.

understanding of the past something more than a knowledge of laws and statistics, of the chronology of events and the details of happenings; there must also be an understanding of the atmosphere of the past, and my endeavor on this occasion will be to describe this background of the past and to point out how it has been and may be brought before the mind of the reader and student. I suppose that it is almost unnecessary in these days to lay weight upon the fact that history is no longer regarded by its professors and followers wholly as a branch of literature. It has become in its methods of investigation a branch of science and in its presentation only is part of literature. The three great schools of historical writing in pre-scientific days, the philosophical, the political and the national, all of them subjected the truth to their own particular philosophical, political or national aims, and insisted upon regarding history as pure literature, finding means to prove some grand philosophical conception, or garbling their treatment of past political history to confirm and support some political views of the present, or producing national histories, in which patriotism was more manifest than love of the truth.

History should be the attempt to discover and state what really happened in the past. If this had been done by all earlier historians, then philosophers could philosophize with some degree of safety; then politicians could speak with some degree of prophetic certainty of political issues of modern times; and some true and valuable national history might be called into being by an accurate knowledge of the national past for guidance in the future. And so it is that I would insist upon the fact that it is not until we have had the events of the past studied with scientific methods that it will be possible with any degree of accuracy to use the doings and happenings of the past for illustrative enlightenment in philosophy, politics or patriotism.

Along with the great interest displayed in the study of the natural sciences during the nineteenth century,

scientific history came into existence, and if the nineteenth century has been anything in the world it has been the century of scientific observation and investigation. I often think today that the truest temples are the temples of science and that the high priests of today are the men of science, who day and night labor for the discovery of some new fact in science with no reward but the discovery and statement of the truth. It sometimes seems that these masters of science have even acquired some of the bad qualities of former high priests of religion in a sort of scientific fanaticism, and a readiness to condemn the honesty of those who do not immediately grasp the entire meaning of their discoveries. The true historian seeks after the truth with as much devotion for truth in history as the biologist or the chemist for truth in biology or chemistry, and it may be that the new historian has fallen into some of the mental disabilities of the new style of biologist or chemist.

And therefore it is that I would emphasize the need for remembering the atmosphere of the past, that background of sympathy which must lie behind the effective work of the historian, just as a sympathetic attitude towards nature must be the background for effective work in biology or chemistry. The atmosphere of the past must not be neglected in searching out the knowledge of the facts of the past. It may indeed be said that science is in its highest development the search after truth, as is literature the search after expression. Truth cannot be expressed barely and give the whole truth at the same time, and so the accurate statement of facts brought out by scientific history cannot give the whole truth. On the other hand, if the whole weight be laid on the literary expression it is impossible to prevent the distortion of the truth. What therefore is needed? The ardent thirst after truth and the power of expression to put it forth clearly count for much, but both of these will not produce great results without the fusing power of an imagination which can look through the past. How can this atmosphere of the past be best trans-

mitted in a way to make clear to the student who desires to know, how men lived and what men did in the past? It is easy enough to show how the facts can be conveyed, easy enough to enumerate volumes of documents, to tell what laws were passed, what proclamations made and what depositions written; to show maps and plans and diagrams, and all the apparatus which those of us who belong to the modern school of teaching history are using; exhibit, in short, the very skeleton of the past; but how are we to give that something which is the atmosphere that lies behind our facts, our briefs and documents, to the men and women of the present? Not everyone possesses the means to discover for himself the way in which the atmosphere of the past can be absorbed by a visit to historic spots. The atmosphere of the splendid past of Egypt no one can get who does not actually visit the temples and the pyramids of Egypt; and ancient Greece means a very different thing to those of us who are fated only to read of the old Hellenic life and to those who have visited the Acropolis and there in-breathed the very air of Athens. The feeling for the life of classic Rome and of that still greater new Rome of Christian faith can be known only by visiting the Eternal City. And to secure the atmosphere of the mediæval past and of the days of mediæval Christianity with all of its seriousness and narrowness, its devotion and its superstition, it is necessary to stand within a mediæval cathedral and there drink in the spirit of the religion of our fore-fathers.

But to come even to this country of modest length of known historic years, the atmosphere of the past can be felt in or through any of the old relics of New England, New York, Virginia, or the South, and as far as our own case in California is concerned there are amongst us many monuments of the past that give us the atmosphere that formerly prevailed within our own state. I sometimes pity those who live in the Middle West, in Chicago, for instance, where they have no historic atmosphere further back than

the great fire, and where they point with enthusiasm instead to the marks by which their present is bounded. In California on the contrary are many prized relics of the past to give the atmosphere thereof. I doubt if ever in Europe have I been in any place where I have felt the atmosphere of the past more borne in on me than I did on the occasion of my first visit to the Carmel Mission. There was a true atmosphere of the past, uninterfered with owing to the desolation of the surrounding buildings, standing and teaching its lesson of how the Franciscan friars from Carmel to San Juan Capistrano, from San Diego to Santa Rosa, conveyed the atmosphere of the past of Europe in names and buildings to California. Another glimpse is given in a visit to such a relic as Sutter's Fort at Sacramento, where can be felt the very breath of another past, bringing before us a pulsating and vivid image of a later generation.

The atmosphere of the past, however, as conveyed by visits to historic buildings, can be clearly obtained only by those who have their historical imagination already stimulated by reading, and to some extent guided by knowledge. In the same way without a certain knowledge of the past it would be impossible to gain an idea of the people of the past from a visit to one of the old mediæval cathedrals of Europe, and an uninstructed visitor would probably characterize the mighty pile as mere waste of human labor. So it is that only after acquiring a knowledge of the past can we secure the true atmosphere of the past from the places themselves. Much of this atmosphere of the past can be transmitted through the study of the literature of the period. Take for instance one of the greatest of all writers, William Shakespeare. Although it is true that his historical plays give very little of the atmosphere of the times of which they were written, yet on the other hand throughout all of those historical plays, throughout all of his plays, the atmosphere of the great age of Elizabeth is apparent. In the mouth of

Henry the Fifth are placed the sentiments of Elizabeth, and through all of the Shakespearean plays is to be found that historical atmosphere of the Elizabethan period which gives inspiration to the Englishman and to the American of today. But it is possible for the atmosphere of the past to be conveyed to those who cannot visit historic sites, to those to whom it is forbidden to feel the Middle Ages of faith in a great cathedral, to those who cannot steep themselves in the literature of the past, to understand Chaucer's King Edward, Shakespeare's Elizabeth, or Pope's Anne, for the atmosphere of the past can be faithfully felt by those who have neither the time for travel in the world nor the time to search for the truth of the past in its literature, through the medium of the best historical novels.

It happened that the great man who was the founder of that school of historical fiction which made its main effort the reproduction of the atmosphere of the past, was a master mind, who influenced not merely his own country but the whole of the western world. Everywhere in European and American literature is to be seen the influence of this great master, who tried through fiction to convey the atmosphere of the past to those who had not the time or the opportunity to travel or to read deeply in the literature of the past, or whose interest in the past was repelled by the great mass of documents and memoirs. No other man in the whole history of English literature, neither Shakespeare nor Milton, has influenced the entire western world like Sir Walter Scott. He was partly moved to write novels because he felt within himself the inability to write history. He could never show a judicial aspect towards the past, but was a partisan all the time, and a partisan can never be a good historian. The reading of Scott's novels is much neglected among the younger generation of today, who prefer a livelier style and more modern language; and yet it seems to me that Sir Walter's method of giving an atmosphere of the past might repay

examination. I will give but a single instance. There is one novel of Sir Walter's containing a character which seemed to me for many years to be purely imaginative, Sir Dugald Dalgetty in "The Legend of Montrose." This singular character seemed to be an effort of pure imagination, for it was hard to believe that Sir Dugald could ever have been a real person. It happened that living one time in the neighborhood of Abbotsford I obtained leave to use the library of Sir Walter, and there I was led to the books in Sir Walter's own library, which he had read and used. A certain volume bore as its title the "Memoirs of an Officer in Mackay's Regiment," and as I turned over the pages and found the very phrases, the very words, and the very atmosphere of Sir Dugald Dalgetty, I realized how completely Sir Walter by absorption of typical contemporary literature got his knowledge of the past, not so much in facts but in the spirit.

But there are other writers than Sir Walter who have cultivated the power of conveying atmosphere. Take for instance Alexandre Dumas, that great and peerless writer of France, who took his ideal from Sir Walter, but treated his material in a manner which is his own. Alexandre Dumas was never bound down by the facts, but absorbed the spirit of the days of Richelieu and Mazarin from the memoirs of the time, and from them realizing the France of the seventeenth century with all of its picturesque and magnificent costuming, was enabled to make it the background of that famous series of novels. The best preparation for studying the history of seventeenth century France would be to read "The Three Musketeers," "Twenty Years After," and "The Vicomte de Bragelonne." Although Sir Walter Scott possessed perhaps the greater power of conveying the atmosphere of the past, yet there are points in which Alexandre Dumas excelled Sir Walter, who, for instance, was ever a partisan, while Alexandre Dumas was not.

I mention only one other writer because of his singular understanding of one feature of history. Charles Kingsley's

"Westward Ho" is the best possible medium for conveying a knowledge of the atmosphere of the Elizabethan period. To us the spirit of the people who dwelt in South Britain at the time of the parting of the ways has for its central fact the defeat of the Spanish Armada, the opening fact of the career of the English speaking people as a world power, which was to begin that long fight started in 1588 with Lord Howard's fleet to go on through the centuries until Dewey's defeat of the Spanish fleet at Manila. Kingsley gave the meaning, the atmosphere of that particular period, and I therefore dare to mention his name in company with the names of his two great masters.

It is now time to turn and deal with some of the historical novels of these later and more degenerate days, that are not so sure of the atmosphere of the past, but are far more concerned with the costuming of the past. In most of the modern historical novels are described the adventures and doings, the thoughts and the fancies of the people of today, but clothed in the picturesque garments of the past, and swearing the picturesque oaths of the past, and thus supposed to give the picturesque atmosphere of the past. A comparison of the novels of Sir Walter Scott and Alexandre Dumas with those of later date will serve to bring home the fact that the mere placing of the scene of a story in the historic past does not necessarily mean the giving to it of the historical atmosphere of that past. Just as the modern stage illustrates the costuming of the past but not its background, so in the modern historical novel are seen the characters of today masquerading in the scenario, the clothes and language of the past. We have lately had a modern novelist, Hewlett, trying to make a psychological study of King Richard I. of England from his inner consciousness, in his "Richard Yea and Nay," a work of singular preciosity, if I may use the word, to be read and understood only by the initiated. Compare the Richard of Hewlett with the Richard of Scott's "Talisman" and the Richard of history, and you will find three very different men. You will find a hero

exaggerated doubtless but playing his part on a stage that rings true, a subtle psychological analysis of an interesting character, with a wholly impossible background. The real man as studied from the histories needs an explanation; Scott gives it in the background of events, while Hewlett's skilful analysis misses the mark from the absurdity of its surroundings. It is the lack of saturation in the atmosphere of the past that causes "Richard Yea and Nay" to be ranked as an historical novel inferior to "The Talisman" or to "Ivanhoe."

The only American novel I have time to mention in which an attempt was really made to illustrate the atmosphere of the past, is "Janice Meredith," by the late Paul Leicester Ford, long a devotee of the history of the American Revolution. I never knew a student of history whose devotion to the past was greater than that of Ford. Soaked and saturated in the atmosphere of the Revolution, with an almost unrivalled detailed knowledge of the events of that epoch, he set himself to work to write a novel which would be the novel of the period of the American Revolution. Most admirable is the atmosphere of its scenes, and the revelation of the spirit of the American Revolution, yet "Janice Meredith" cannot be called a masterpiece among historical novels, because with all of his knowledge of the past Mr. Ford did not have the gift of conveying it in the convincing way that belonged to such masters as Scott or Dumas. Therefore though the best novel of the period of the Revolution, "Janice Meredith" only shows that it is possible for a great student of history and a man of great literary ability to bring forth a great historical novel filled with the atmosphere of the period it represents and yet to miss the goal of assured success.

The modern student of history has not the time to read all the literature of all the various periods of history, to make the background and his researches. What he needs is something which shall give him the atmosphere of the past swiftly and easily; and how can this be done better

than by the best historical fiction? A great master of science in an address in this building not long ago claimed that the chief duty for the man of science of today was to cultivate his imagination. Professor Loeb has made as great and as valuable and as world-shaking discoveries as any living man of science; and yet he was willing to stand forth in this very hall and declare that it was not painstaking determination, and devotion to work, that was to round out the labors of the man of science of today, but that the great quality of imagination must possess him if his results are to be of lasting value. If this be true of investigations in natural science, it is at least equally true of history. Imagination must illuminate the path of the historical as well as of the scientific scholar, and the particular province of the imagination in the field of history is to supply them with a true, and at the same time, inspiring background, which may be summed up in the one phrase, the atmosphere of the past.

THE RELATION OF INSTRUCTION IN ENGLISH TO INSTRUCTION IN THE OTHER BRANCHES OF THE SCHOOL CURRICULUM.*

ALEXIS F. LANGE.

We have all noticed what happens when an armful of green sticks is cast on a bed of ashes covering a mass of live coals. One stick after another absorbs the heat; sparks begin to fly; the sticks begin to quiver and squirm, and to crackle and sizzle; here, there, everywhere are tokens of activity, but of activity at cross-purposes apparently, discordant, confused activity. But a flash of lightning at just the right moment—an ordinary match will do—and the whole pile is on fire, a new unit of forceful, harmonious action.

Needless to say, I have neither the lightning nor even the match for the pile of conflicting views and experiences heaped together on our ardent pedagogical wishes and desires concerning English and the other branches of study. What I want to do is to add a green stick, and I shall be satisfied if the stick does not turn out to be too green to burn.

Stated precisely, the question for discussion seems to me to be this: The relation of instruction in English to the pupil and *through him* to instruction in other branches.

Allow me to take two or three minutes of your time to justify this wording and to make clear my point of view.

*An address delivered before the Teachers' Institute of Alameda County, at Oakland, October 10, 1902.

The kingdom of God, we are told, is within us. The Heaven or Hell beyond earthly existence is merely continuation, culmination, fruition. The life that is ours now is a preparation for the life to come only as today is a preparation for to-morrow. Looking ahead fixes direction, but enough for this day is the evil thereof. The days a boy spends in school are a part of his life; the days spent out of school are a part of the same life. The one indivisible boy is pupil, son and playmate, and enough for the one indivisible boy is the life of his boyhood. Whether he lives to become a man or not, instruction, training, construction and perhaps destruction, work and play, being alone and being with others—all these things have their own independent value in his life as a boy. They are not merely preparation for his life. They make up his life.

But regard for the future—a future, which, we believe and hope, will extend through the infinitude of Eternity—brings in aims that transcend boyhood. By the time a boy leaves school we want him to have something, namely knowledge; to be able to do something, with his senses, with his brain, with his hands; and, as the result of learning and doing inside and out of school, to have become somebody, to be a purposeful, powerful, socially useful personality in the making.

Now the chances that a boy will become a person instead of a conglomerate of human fragments are altogether against him if he is permitted or made to lead a double life, *à la* Dr. Jekyll in Stevenson's story. The boy's curriculum outside of school consists of the phenomena and forces of nature and the phenomena and forces of humanity. In school he has the same curriculum, but artificially broken up and arranged in definite groupings in order that he may the more easily get his bearings and find himself in the chaos of the other curriculum, and hence learn to coöperate, body and soul, with the laws of Nature and of human destiny. But, as his mind is not literally a stomach in which mathematics, history, literature, are automatically and

speedily converted into one nourishing liquid, as beafsteak, mashed potatoes, and turnips are into cell-building juices, it follows that he must be assisted if the separate groups of school studies are to unite in him and to build him up. It follows also that the gap must be closed between the boy's life experiences in school and those obtained outside. "I saw," an Old English monk is made to say in an Old English riddle of the ninth century—"I saw a strange sight. A tiny creature ate words. He swallowed the speech of the wise and the good. Stranger still, he became none the wiser for all his eating." The solution is a book-worm. The words of this observant monk apply, not only to the book-*worm* but also to the *book*-worm, the poor, little book-fed human creature, dust-covered, myopic, unable to live outside of a book, inky and papery inside and leathery outside. He has swallowed the speech of the wise and the good; he is none the wiser for all his eating. The pity and pathos of it! A worm that might have been a man by following up the words of the good and wise to where their goodness and wisdom were achieved—in God's out-of-doors and in the midst of human society.

From the point of view just indicated the question we have met to discuss resolves itself almost necessarily into the form I gave to it at the outset: The Relation of Instruction in English to the Pupil and through him to Instruction in other Branches.

Nothing is farther from my thought now than to plunge into the everlasting chapter on educational values. Nor do I wish to dwell on the specific or technical purposes of instruction in the mother tongue and its literature. What I do desire to emphasize, first of all, is the fundamental identity of aim in all school-studies. In our thinking about immediate particular purposes we are all prone to lose sight of the one basic relation in which all studies stand to the pupil. The question: Is my pupil learning to spell correctly? is not the whole question. It leaves out the better half. The whole question reads: Is my pupil acquiring

thoughts, and is he gaining in facility to attach the conventional signs to them? The partial question is: Can the boy speak and write in correct sentences? The whole question reads: Can he add, substract, multiply, divide his thoughts and feelings as truly as his stage of growth permits, and can he state the results in what according to usage is good English? One of the most specious forms in which the partial view appears is the assertion that literature is studied for the pleasure it may give. Now, our modern craving for pleasure, first, last, and all the time, is largely a symptom of degenerate nerves. One can become dissipated on art as well as on whisky. The questions a teacher of literature needs to ask herself are: Is my pupil's insight deepening? Is his mental horizon widening? Is he getting a new eye to see with, a new set of nerves to feel with? Is he reaching out towards higher ideals of conduct? Are his impulses to action aroused and is the resolution becoming fixed to do and to dare in noble service? What the pupil does after leaving school with the classics he has read in school need not concern us greatly. If I knew that all of my students would in later life habitually read the good books they read in my classes, I should feel I was giving an illegitimate twist to the young trees in my charge. Suppose contact with literature has awakened a girl's slumbering art sense, which finds its nourishment and exercise henceforth in another art than literature. Has the teaching of literature been a failure? Suppose a boy's latent interest in human progress has been aroused by the human fortunes he has beheld in the poet's mirror, and then turns away from the mirror forever to living men and women for study and nobly helpful action. Has the teaching of literature been a failure? A thousands times no! It has been *vital*, though perhaps not as completely so as we wished and hoped.

With respect to pedagogic uselessness the teacher of mere deportment in spelling, grammar, rhetoric, stands easily first; the position next to him is occupied by the art bigot.

But let us leave literature out of account and turn to the mother tongue. This stands in a peculiarly intimate relation to the pupil's growth, no matter which direction his growth takes, no matter whether we look at the school or at the home and street aspect of it. The mother tongue and the unfolding of a boy's inner life are inseparably connected. "The whole intellectual development," as Laurie well puts it, "from the simplest sensations and ideas to the complex operations of logical thinking and of ethical and æsthetic feeling, rests on processes that take place entirely within the boundary lines of the native tongue." Expressed more concisely, culture is obtained ultimately only in and through one's own language. Where this is English, every teacher is a teacher of English; every good teacher, whatever his subject, is a good teacher of English. Not of deportment in English, to be sure, but of the form that embodies the content. The boy studying geometry may continue to say with Thackeray: "that's me;" he may even persist in using a double negative as King Alfred did all his life; but geometry is poorly taught if he does not progress in precision of statement, if he does not increase his mastery over causal conjunctions and subordinate clauses, if he does not cease to pattern his compound sentences after this one—"the mother went to heaven but the father went to Pennsylvania;" if he does not acquire unconsciously the essentials of structure in composition. The same is true, in varying ways and degrees, of all other subjects. The pupil's growing command of connected utterance, oral and written, is, therefore, the normal index of growing power in any subject, often the only sure evidence that he is reacting on the material presented, that he is gaining more than the ability to spit out unchanged what he has swallowed with or against his will. Oral and written composition are not a vermiform appendix that the teacher of mathematics, science, history, foreign languages, could cheerfully dispense with and no harm done, except to the teacher of English; they are first for every subject among the organs of mental digestion.

They are the chief organs. There are others. One of them is manufacturing in the literal sense. The boy that has constructed a wheelbarrow is a maker *i.e.* a poet. He has apprehended facts; his imagination has made him see a wheelbarrow in these facts; selecting some, rejecting others, unifying his knowledge, concentrating his powers, he has at last realized his vision, and now is proud of his handiwork; justly so, for has he not put himself into that wheelbarrow? I owe a great deal to the personal influence of the teachers I have had and more probably to those I had first than to those I had later on, but the first steps in thinking, the first intelligent coördination of my knowledge I owe to a tool-box. Much later, the effort to reconstruct the bridge Cæsar built across the Rhine meant the first firm grasp of Latin and the first feeling of personal intimacy with the great Caius Julius. But invaluable as manufacturing is, invaluable as drawing is, for the purpose of converting information into knowledge and this into power, the work of our hands is limited as to scope. It may and ought to supplement the mother tongue, but the mother tongue is ever present, ever ready for use, ever indispensable. Composition, oral and written, is the final stage of training in every subject studied.

All school studies have one and the same aim; this is the fundamental relation in which all stand to one another with reference to the pupil. Composition is the chief instrument for the assimilation of knowledge; this makes it an integral part of every subject taught.

But let us a go a step farther. As already suggested, one's native language is the one natural instrument of unification. In our laudable endeavor to arrange the various studies of the school curriculum in such a way as to afford the greatest possible number of points of contact, we are apt to forget that the living pupil is the core of instruction. Mechanical coherence is not organic unity. A *multum in parvo* jackknife with the nicest adjustment of blades, auger, and corkscrew, to one handle, may be a very

useful tool, but it is not a growing oak. Roads must be constructed, bridges must be built, from subject to subject, from experience to experience; but it is the pupils that travel, personally conducted by the teacher. And the *vehicle* is the *mother tongue*. Stripped of metaphor, the matter stands thus: we teachers must give our pupils the richest possible opportunities for discovering relations between parts of one subject, between subject and subject, between all subjects and their own direct experiences with physical and social surroundings, and then concentrate their out-going, their construction impulses, in fact all they know and are, on tasks of expression containing such opportunities.

It is time we begin to think of Cinderella as a princess. She is too well-born, too intrinsically noble for the treatment she frequently gets. She ought not to have to be satisfied with "any old thing." She is entitled to fully as much attention as her sisters. In a manual training school where carpentry is taught, the boys are not told: Find your lumber, buy, borrow, or steal your tools; then make something. But for the supreme act of self-activity, do not we all often say: Take thy pen and write. Build an airship, for example, and sail three times round the top of the Eiffel tower. Should we be surprised if all the pupil can do is to furnish the gas?

Lessons in music are carefully graded and made cumulatively progressive; in teaching another art of expression, drawing, we follow a similar plan. Have we begun to do something of the same sort for lessons in logical thinking, in imagining, in giving order and direction to will impulses, in other words for lessons in unifying the inner life of the pupil by means of oral and written expression? No, Cinderella's slipper has not been found yet. All the more reason, however, for going on a coöperative search.

Allow me to suggest a basis of operation. As I said at the outset, the pupil's experiences fall into two main classes or hemispheres, those obtained in school and those obtained

outside of school, the source, however, being the same for both, namely, Nature and man. I said also that the pupil needs assistance if the course of his life is to run in harmony with the laws of the universe, and if he himself is to become a purposeful, powerful personality in it. Obviously such assistance should not be sporadic and haphazard, but continuous and intelligently planned. To make it so we should be immensely aided if we had a store of well-classified, well-formulated, well-graded composition topics covering both hemispheres of the pupil's life, with special regard for the network of relations which make the universe an intelligible universe to man. These topics would, of course, include the æsthetic and ethical interests as well as the knowledge interest. By means of suitable exercises from such a storehouse the pupil would learn to connect what he knows or can easily find out about his physical surroundings—location, topography, plant life, animal life—with his lessons in geography, in mathematics, in chemistry, in physics, in botany, and zoölogy. The storehouse I have in mind, would contain another compartment from which might be drawn topics small and large, to assist the pupil in appreciating the relation of the human life about him to the understanding, uses, and beauty of Nature, and the relation of all this to the human life of other places and times, as he finds it depicted in books. In a third compartment, probably the largest, would be found topics taking the pupil into the province of all those phenomena, material and spiritual, that appear where human lives are lived together, the community of which the pupil is a part being drawn on for one series of themes, his studies in languages, literatures, in history and civics, for another series, and both for a third series of connecting links. A fourth class of such a collection would consist of more technical topics, designed for the unification in the pupil's mind of each province of study and of neighboring provinces.

Let me indicate by a few rough strokes how, for example, the practice of expression might be made the means for con-

solidating the study of rhetoric and the study of a literary masterpiece, say Julius Cæsar. Now, the study of such a play requires attention to plot, to setting, to characters, to ideas, to the language. But suppose we had a body of graded topics based on these constituents and carefully framed so as to engage either the intellectual, or the æsthetic, or the ethical interests of the pupil, or all combined. They would fall into four series: narrative, descriptive, expository, argumentative. The topics for practice in narration would be largely derived from the plot; the setting would furnish most of the tasks in description; the language, the characters, and the ideas would constitute the main source of theme-subjects in exposition and argumentation. As the more minute examination of the language and of form generally should always come last, the order in which the different aspects of the play would receive attention is approximately that just given. This order is paralleled by the sequence of exercises in composition, oral and written. Now, as soon as the pupils have begun to read the play,—for the story element first, I repeat,—the teacher would gain time in the end by recalling to their minds the main requirements of effective narration, and then insisting on frequent application orally and in writing, through the topics drawn from or suggested by the plot. The same plan would be pursued with the other constituents of the play, the final expository exercises and the debates being relied on particularly for the unification of the pupil's conception of the play as a whole. A portion of the theory of rhetoric converted into increasingly unconscious skill; knowledge, and appreciation of the play; increasing power and the sense of increasing power; ability to read aloud with interpretative emphasis,—such would seem to be the possible results.

No one man, however, least of all a university instructor, could produce such a corpus or body of typical, model theme-subjects as I have tried to describe. Like a good text-book, it would have to be the outcome of actual teaching,

by many teachers, in many grades, in many subjects. This is why I spoke above of coöperation. I have sometimes thought I would ask the teachers of California to send me all the really successful composition topics and to work out more according to a plan I thought I could work out and submit to them. Little by little the collection would grow until we might edit it under some title proclaiming it as our joint-product, the proceeds to go to the teachers' pension fund. Meanwhile it might be possible to make use of some school journal as a repository and medium of interchange of valuable suggestions concerning this whole question of relation of English to the pupil and through him to the other school studies.

In closing I must remind myself and you of two things. One is that while method is always better than muddle, nothing can take the place of the living teacher. We must never say:

> Put every little tot
> Through this patent slot,
> And the machine,
> Of all the best
> For fat and lean,
> Will do the rest.

And the other is: failure is not a crime; low aims are.

THE LIVE OAKS OF THE UNIVERSITY OF CALIFORNIA CAMPUS.*

WILLIS L. JEPSON.

The Live Oaks of the University of California grounds are all of one species, the coast live oak or *Quercus agrifolia* of the botanists. It is the only native oak found on the lower slopes of the Oakland hills. There are upon the University Campus 586 trees large and small. Of these 63 have trunks which average three feet in diameter, 184 average two feet in diameter, 206 average one foot in diameter and 133 are small trees or shrubs mainly three or four inches or less in diameter. The lower campus (below the College Avenue Bridge) has 290 trees and the upper campus (above the College Avenue Bridge) has 296 trees. The acquisition of the Hillegass tract increased our collection by four fine trees which are very centrally located. The purchase of the Palmer tract gave us about 100 trees large and small which form part of the dense scrub on the south side of Strawberry Cañon opposite the dairy barn. If these be added we should have a grand total of 686 trees on the University domain.

A number of the finest and largest trees on the lower campus are far past maturity, that is to say, they are in the period of old age, and there is a fairly regular death

* A Report to the President of the University.

rate. Counting all trees large and small the death rate has been about one tree a year.

In the case of the older live oaks death is due to one cause and is, unfortunately, not preventable. All of the older trees and many of the middle-aged trees are diseased. This disease is due to a fungus which enters the heart wood, travels slowly up and down the trunk and out into the branches. It is popularly known as "dry rot." Eventually the heart wood of trunk or limb becomes wholly rotten and there is often no sound remaining wood, but a thin supporting shell of sapwood. A windstorm or the weight of the crown causes the tree or limb to fall. Frequently the wood becomes so diseased that the bark is affected, breaks or fissures badly, and falls away, leaving bare patches. The bark is now falling from the high limbs of one of the largest trees near the Faculty Club. When once the spores of the fungus have entered the heart-wood of the tree there is no possible way in which the disease can be eradicated. It is important, however, to emphasize the fact it is impossible for the spores of the fungus to enter the heart-wood (which is completely covered by the sapwood and the outside bark) except through a wound. A windstorm may break off a limb,—the stub dies and rots back, providing an entrance to the main body of the tree. Again, removal of the bark causes the exposed sapwood to die. Dead sap-wood rots more quickly than heart-wood and thus rapidly communicates the disease to the sound heart-wood lying back of it. It is by such accidents or by axe-wounds that the disease secures an entrance.

However, the entrance of this disease is in a large measure preventable and its progress can be materially checked in many cases. Such being the case the oaks on the ground are now being given a very thorough overhauling. All dead and rotten branches and branchlets are being carefully cleared out of the trees. They are sawed flush with the stem or trunk and then the cut surface or

scar is painted with tar as an antiseptic. This treatment prevents the entrance of disease spores and in the case of the smaller scars the bark is encouraged to grow and close over the wound. The diseased wood of hollow trunks and rotten spots is chiselled out as thoroughly as is possible, painted with tar and filled or caulked with cement. Such treatment is for the purpose of preventing an accumulation of rain water in the hollows. To cut off the water as much as possible is a very effective way of retarding the progress of the disease.

As has been said, however, there is no way in which the disease can be wiped out of the older trees. Some of these trees have been diseased a very long time, from 50 to 100 years or possibly longer. A large tree at the College Avenue entrance is now practically dead; severe pruning might save the lower portion of it. It is not easy to predict how many trees we shall lose in the next ten years, but doubtless not more than five or six large ones.

During the last two years we have lost two large trees. The death of these was due to "dry-rot." On the other hand there are many diseased trees which will be of æsthetic value for 100 to 150 years yet, possibly longer.

If we should lose on an average two trees a year for 250 years, we should still have, by that time,— new growth aside, some fine oaks left, although the average age of the older dying trees does not, probably, very much exceed 250 years.

As indicated above there are many young trees 3 to 25 years old, naturally propagated, which are making satisfactory growth and will be ready to replace older trees in the next 250 years as the latter disappear. These young trees are, however, confined mainly to the upper campus. If, therefore, the stand of oaks on the lower campus is to be maintained forever, it is necessary that there be systematic planting so that the young trees may gradually succeed those we now have. By such a course the "Berkeley Oaks," immortalized on the canvasses of Keith, may also be pre-

served "in the flesh" forever. It would be my recommendation that a few trees be planted every five years. The Botanical Garden possesses a nursery of seedlings which are now very lusty and may be drawn upon for this purpose. The expense of this would be immaterial as but a few trees would be needed.

It would also be desirable to have a few specimen trees of other species of the finest California oaks. Through the courtesy of Regent Foster, President of the California Northwestern Railway Company, I was enabled to make a collecting trip into Mendocino County in the fall of 1902. As a result we have in the Botanic Garden nursery a good stock of seedlings of several species.

Another factor which has contributed to the health of certain of the oak trees has been the thinning out of the pines and cypresses during the last two years.

A few oaks, which were being sadly overshadowed by the more vigorous growth are now recovering. The LeConte Oak, which will probably not live more than fifteen years, is now in better health than it was two years ago.

It is noticeable that the trees situated on lawns, where there is a bountiful supply of water, are all in very thriving condition. It is to be wished that the lawns might be restored in the "Lover's Lane" region. Failing the practicability of this the natural leaf-mold should be conserved beneath the trees and where it has been scraped away it should be restored. The leaf-mold forms a moist blanket over the surface of the ground, protecting the roots from desiccation.

At irregular intervals of years the oaks are attacked by the tent caterpillars which eat away the foliage and render the tree unsightly in appearance, but it is not believed that the worms work any permanent injury to the trees. It seems to me, however, that it would be worth while from the æsthetic point of view to spray the trees on the occasion of the next visit of the caterpillars, since there are not a

few people who hold to the opinion that the oaks are the most sightly things on the Campus. Data as to the cost of this can readily be furnished.

The Berkeley electric light lineman (in accordance with the former practice on public highways) cut off one-fourth of the crown from an oak at South Hall and cut a hole five by seven feet in the foliage of an oak opposite East Hall. The poles should be lengthened eight or nine feet and the wires raised out of the trees in order that the new growth may fill in the original outline. One of the trees will grow in rather quickly; in the case of the other it will take a long time. These trees stand in very conspicuous positions on the main drives and attract a great deal of unfavorable comment.

Our grounds are so large and so scantily policed that individual depredations are very difficult to prevent wholly. The University authorities have always been exceedingly jealous of the oaks and have shielded them from vandals with remarkable success. But times are rapidly changing. Of late our grounds have become, as never before, a resort for people from the near-by cities, due to increased transportation facilities. It is particularly the Sunday visitors that tear away branches from flowering shrubs, ripping down the bark, and leaving long gaping wounds. I have seen the whole crown of a flowering shrub torn away within the period of a week, scarcely anything being left but the trunk. Along with this prospers mutilation of tree trunks. The Saturday afternoon and Sunday picnic crowds mutilate the trunks by cutting initials. Investigation shows that initials cut through the bark long ago are plainly responsible for certain badly rotted trunks today. These trees will eventually fall; when they do fall it is to be said that their death is directly traceable to the cutting of initials in the bark.

The genus "Berkeley Small Boy" is also a constant factor; he has recently injured six of the large trees by cutting the trunks with a cleaver or hatchet. One of these

wounds is over one foot long, four inches wide and at its lower portion reaches through the bark to the wood. Those are instances. Unfortunately, I could continue to cite such at great length.

We are, therefore, not justified in spending money on the horticultural care of the trees unless a more vigorous protective policy is inaugurated to meet changing conditions. There should be as wholesome a fear of trespass on the University grounds as in the Golden Gate Park. In order to bring this about the Superintendent of the Grounds should be clothed with ample police powers for the prompt arrest and prosecution of offenders.

The greatest natural charm of the grounds is due to the presence of the Live Oak trees. The graceful outlines of their low round heads repeat the lines of the hills which back the University estate. What the Elms are to New Haven, the Live Oaks are to Berkeley.

SUMMARY.

There are about 686 oak trees on the grounds of the University.

All of the older trees and many of the younger trees are afflicted with "dry-rot"; there is no cure for this disease.

Some of the largest trees are now dying and will be taken out in the next ten years. After that period the death rate is expected to fall.

Pruning of dead branches and tarring the scars excludes disease (or in diseased trees retards the progress); this is the "ounce of prevention." The longevity of the younger generations of trees will be greatly increased by such care.

The trees thrive best where there is some surface moisture; grass lawns, or conservation of the leaf-mold increases their vitality.

Prompt arrest and punishment of vandals will have a salutary effect in minimizing the number of offenses of the kind mentioned.

The electric light poles should be raised out of the two mutilated trees at South and East Halls in order that new growth may restore their outlines.

Our live oak trees are native groves. The conditions are in no essential particulars different from those of other groves elsewhere in the state, where old trees are always at some time dying and are being replaced by younger ones.

There should be systematic planting of a few seedlings in order to ensure a perpetual stand. The live oaks are trees of slow growth but that is no valid objection to them; quite the contrary. We are planning not merely for today or tomorrow, but for the future.

THE GREEK PLAY IN THE MAKING.

H. W. Prescott.

The Greek play, as such, hardly deserves a place in *The University Chronicle:* it was merely part of a larger celebration—the dedication of the Greek Theatre. Regard for proportion, and to a much greater degree, the exigencies of hurried preparation made the play simple, short, and in one sense insignificant. For our own effort on the twenty-fourth of September is not comparable, in conception and in realization, with the more ambitious and successful attempts of Harvard, Stanford, Vassar, Pennsylvania, Michigan, and other universities which have severally devoted the larger part of a college year to the preparation and production of an entire tragedy or comedy in Greek or in Latin. In other senses, however, our little play does assume a certain significance: it was, I fancy, the first time since the early centuries of the Christian era that a Greek play, given in Greek, felt entirely at home in its environment; the fact that the chorus was in its proper place and that the actors in the various scenes played their parts in the orchestra, instead of upon a stage, made the occasion a memorable one. These are matters, to be sure, that interest only the student of Greek drama and dramatic performances; the other features, however, which the layman would emphasize, were such as our play had in common with the performances of other classical plays elsewhere.

The significance of the play in these respects we owe to the generous donor of the theatre. One other aspect of the play is equally memorable from a different point of view: when the acting-chorus, after their spirited rendering of "Hail! the conquering hero!" retired to the dressing-tent at the conclusion of the performance, their joy at release from a month's hard labor found expression in cheers and songs, the last of which, apparently chosen with due sense of its fitness, was "All for the sake of California"; as a record of distinctly creditable service to the University on the part of actors, acting- and singing-choruses, and many others, an account of the Greek play, however insignificant it may have been as such, does deserve a place in a chronicle of university happenings.

On the first Sunday in June two members of the Latin department who had not been wise enough to spend their vacations out of town were suddenly invited, in the absence of more competent persons of the proper department, to serve upon a committee of three to prepare a Greek play for the dedication of the Greek Theatre at a date not later than October first. When these persons recovered from the shock of the summons their first effort was to secure the assistance and the direction of the absent Greeks; the ready service rendered by Professor Flagg in the preparation of the translation and of the programme made these features of the play the most completely successful elements in the production; and the cheerful coöperation of Professor Allen, who sacrificed a summer set aside for special research, to say nothing of many hours in the first term, was a constant source of gratification.

As the committee look back upon the preliminary labors of the summer vacation they find two encouraging features in the apparent hopelessness of their task. They had resolutely refused to attempt more than could be satisfactorily accomplished, and the seven scenes from "The Birds" chosen as a result of this determination were, in subject-matter, well adapted to satisfy a modern audience and, in

length, consistent with the limits of time necessarily set for preparation. The most encouraging element, however, of their work lay in the fact that seven competent Greek students of the right sex were residents of Berkeley or of the neighboring towns, and that these men cheerfully accepted,—rather, regarded as a privilege,—the task of assuming the important parts. The creditable performance of the little we attempted is due to Pisthetaerus, who pleaded for the honor of learning the main part to add to the happiness of his honeymoon, and who, later, amid his exacting duties as teacher in a secondary school, faithfully attended every rehearsal and admirably executed his task; to Euelpides—Poseidon, whose rendering of Greek and close sympathy with the spirit of the language made criticism superfluous: to the Messenger, for his persuasive optimism and intelligently forceful acting—"from the Messenger," says the best Greek among us, "I first discovered the characteristics of his Greek original"; to Iris, who lifted and lowered his voice in truly feminine modulations; to Prometheus for effective devotion to his work; to Heracles for having added to his width and stature and scholarship for many years obviously with the intention of assuming this part in our play; nor should Triballus, who sloughed off the graces of a litterateur and assumed with ease the *gaucherie* of a barbarian god, nor the hustling servant, nor the beautiful bride go without grateful recognition of their services. For several days each week during the vacation many of these devoted time, properly sacred to recreation, to rehearsing their parts with members of the committee.

One of the first problems to confront us was the music for our opera. Negotiations with our English cousins proved to us that in spite of their gracious willingness they were not likely to provide us in time with the score of Professor Parry's music written for the Oxford production. Fortunately the Harvard Classical Club had already attempted similar scenes from "The Birds," for which

Professor Paine, the well-known composer of the music for the Harvard "Œdipus," had written a score marked for an orchestra of over thirty instruments. At Harvard, this music was not given with the accompaniment for which it was composed, and we were glad of an opportunity to present it in such a way that no one could doubt its eminent value and fitness; we owe a great deal to Professor Paine personally for his prompt and hearty willingness to supply us with the requisite material. Another nice problem, admirably solved by the chairman of our committee, was the selection of a person to superintend the musical part of the programme; the task required a director of many and diverse qualifications,—one who could in six short weeks bring out, in all the volume necessitated by the open-air auditorium, and in all the harmony which our obligations to Professor Paine demanded, the voices that thirty generous student-singers had pledged to our service. Dr. H. J. Stewart, by his personal acquaintance with Professor Paine and his sympathy with the composer's ideas, by his tactful and vitalizing personality made the music a feature that appealed strongly both to Greeks and to barbarians. To him the selection and direction of the orchestra, the choice of the tenor soloist, as well as the handling of the singers, were consigned without fear of failure; a satisfactory result of his successful achievement is the appointment of Dr. Stewart as director of the new Glee Club.

Soon after the college term opened the different component parts of the play were well organized and at work: the actors now began to rehearse their scenes, and the play as a whole; the singing chorus was busy two evenings of every week; the acting chorus was selected by the efforts of Professor Allen and Mr. Levy and soon began the task of trying to be birds in grotesque modern costumes. Already, of course, the external features of the play had been roughly planned, and now more definite settlement was imperative. The division of the singing and the acting

between two choruses,—the chorus visible and "the choir invisible," as they came to be called—was unfortunate, but necessary because of the shortness of time and also because it is not easy to find twenty-four men who know Greek, and who if they know it are at the same time possessed of singing voices and willing withal to memorize Greek, to dance, to sing, and to act. One gets a clearer and somewhat discouraging notion of the accomplishments of the Greek when one tries to ape the part. Eventually this division was easily obscured; for the solution of another problem served to offer an equally happy escape from the awkwardness of having two visible choruses dividing between them the labor properly assumed by one.

Our Greek theatre is an admirable compromise: it reproduces the essential features of the Greek theatre of the fourth century B.C., and at the same time it is easily adaptable to the needs of a modern auditorium. On the whole, however, the production of a Greek play of the fifth century presents little difficulty. The stage of the Greek theatre at Epidaurus was, as compared with ours, almost twice as high, about one-fourth as deep, and a little more than half as long; the orchestra of the Greek theatre corresponded in diameter pretty closely to the length of the stage: in our theatre the diameter of the circle is only a little more than half the length of the stage. Obviously it would be difficult to present scenes in which, with one exception, only two actors appeared, upon a stage as long and deep as ours. This difficulty suggested screening off the opposite ends of the stage, but the singing-chorus, whom we wished to conceal behind such a screen, would then be separated in two divisions to the detriment of the music. The other alternative of screening off the ends and the front, and leaving a stage seven feet in depth and seventy-five feet in length was equally unsatisfactory. In fact the scenes themselves showed the clearest indication of close contact between actors and chorus: it was absurd to put our actors six feet higher than our acting-chorus. The

gradual realization of this fact afforded eminent satisfaction to some of us who had long since subscribed to the theory that there was no raised stage in the Greek theatre of Aristophanes's time. Were not the actors on the same level with the chorus? Did not the *parodoi*, or entrances at the side of the theatre, serve for actors as well as audience? So, with variations in detail, many German and American scholars have argued for some years in spite of demurring appeals from their English and French brethren. We promptly gave up our feeling that the lines of the stage and the stage-building, so well planned by the architect, should not be concealed, and resolved on a screen which separated the whole stage from the orchestra and served to hide entirely both the orchestra and "the choir invisible." It was very gracious of the architect to say that the screen thus constructed enhanced the beauty of his structure instead of detracting from it.

The screen itself deserves a word: it was planned, nest and eggs and all, by Mrs. Richardson, and excellently constructed, the nest by Professor Allen, and the main portion of it by the willing hands of members of the departments of Physics, of Chemistry, and of Mathematics; that such coöperation in a Greek play should have come from these last sources is a detail that added to the pleasure of the undertaking.

At the opening of the college year, too, the costumes of actors and acting-chorus required some investigation. Those of the former were easily constructed on the basis of Körte's researches. The illustrations in Körte's article in the annual of the German Institute contained several illustrations that suggested the make-up of three actors; the Greek divinities among the *dramatis personæ* were reproduced so far as possible from the art of the period. Of these costumes it need only be said that they resembled those of ordinary Greek life except in the shortness of the over-garments which, in the case of the comic tunic, reached a little below the waist, in the padding which

exaggerated with comic grotesqueness the stomach and haunches, and in the use of tights covering the entire body except the face, hands and feet. Such details could pass unmentioned if there had not been rumors of a belief, based on the costumes of our actors, that the Greeks wore pads! It was a disappointment to find at the last moment that the masks which should properly have concealed the actors' faces could not be secured; it was also unfortunate that the foot-gear was hardly Greek. But we hope that, on the whole, a reasonably faithful copy of the comic costume was provided.

For the costumes of the chorus a vase-painting of a masquerade in bird-costume, dating probably several decades before the year of our play, offered some hints. But the design of these costumes was almost entirely the work of Mrs. Richardson, who planned the color-scheme and worked out the patterns for each individual bird. To this statement of our indebtedness to her should be added an acknowledgment to certain ladies of Berkeley, who spent a whole day just before the performance in stiffening tails, woodening beaks, and changing the anatomy of wings, so that nothing in the external appearance of the play failed to satisfy the committee.

When actors and birds were combined the rehearsals assumed a discouraging aspect. It was no easy matter to stimulate sympathetic attention to the actors on the part of thirty undergraduates who were quite ignorant of the Greek; least of all was it easy for the chorus to adapt themselves to the movements of birds in the accoutrements of modern American citizens. The committee, too, were rather helpless; in default of clear evidence, in the Greek dances, of the exact movements of the chorus, uncertainty and constant changing of plans were unavoidable. Eventually we freed ourselves from all dependence on the slight and dubious information on the subject and consulted rather our own convenience and the pleasure of the audience. The number in the ordinary comic chorus was

twenty-four, but the text of "The Birds" indicates the presence of six others, two of whom were probably flute-players, such as regularly accompanied the singing, and the other four of whom we identified, following a suggestion of modern scholars, as a supplementary quartette of lyre-players. We do not dare to hope that these six birds deceived the audience into believing that they furnished all the music: at least they may have suggested how different the Greek music must have been if such a small number of instruments of this sort furnished the accompaniment at the original performance. The entrance of these thirty birds was probably fairly true to the spirit of Aristophanes's day; at least we know that in "The Birds" the chorus entered "sporadically" instead of in the regular formation usual in other plays. Their movements in the play itself we cannot say were faithful reproductions of Greek ways. Certainly the ancient chorus paid sympathetic attention to the action of the main characters; it is less certain that the singing and orchestric movements were executed by the half-choruses in turn instead of by the whole chorus; without much doubt the figures and dancing-steps of our hastily prepared chorus were far from the ancient ideal. However uncertain from the scholar's standpoint this feature of the play was, the birds succeeded in entertaining the audience and removed a great burden of anxiety from the hearts of the committee by their vigorous and intelligent manœuvres on the day of the performance. This was due not only to their own efforts but to helpful suggestions from Mr. Greet, to whom we owed the perches and the happy idea of letting the Prometheus-scene soothe them into a very realistic slumber, and to Professor Allen, whose energy and ingenuity were admirably exercised.

In spite of all the hard work of actors and choruses and efficient helpers, the play would hardly have so surpassed our own expectations, had not the structure itself, and the presence of the "fairy-mother," by whom it was all made

possible, and of a cordially sympathetic audience stimulated everybody to his best effort. No measure of success could have been gained if the great mass of details, which because of their nature and number can find no place in this account, had not been in the hands of a methodical and resourceful chairman; how enormous this part of the task was, may be appreciated when it is known that almost every hour of the day for four weeks was fully occupied in the performance of his duties.

In view of the fact that the Greek play and the Greek theatre are likely to occasion further efforts in the same direction I may suggest that such undertakings are both desirable and dangerous. The ease with which the actors bandied about, in the midst of ordinary conversation in English, the Greek phrases in their respective parts is significant of the value, to students of Greek, of such reproductions; the interest of the spectators, in spite of the unknown tongue, might lead one to hope that the Californian found, perhaps for the first time, that the ancient Greek was not the reposeful and abnormally healthy-minded creature whom a false tradition has foisted upon us, but a human being capable of feeling and expressing all the joy of living that is the heritage of a Californian. It is desirable that Greek students and the general public should be helped to know the Greek as a human being in the realistic comedies; above all, that his sense of proportion, his intellectual sanity in general, and his exquisite appreciation of the beautiful should be made manifest by the reproduction of Greek tragedies. But the student and the general public are not necessarily served in the same way. The latter may well be better satisfied with such plays in English translations presented by a permanently organized company of persons within and without the academic circle. The student, on the other hand, should have his needs met in a different way: a classical play, devised for his benefit, should be so arranged as to be a part of the regular work in college, and not a disturbing element out-

side of it. An advanced course, or advanced courses, may profitably be assigned for the year's work the preparation of such a play: one group of students will investigate the costumes, and make them; still another the necessary details of private life, and dramatic antiquities; a seminary course will establish the text, interpret it, provide a translation, and furnish the actors, so far as possible, from their own number; a department of music, which we hope may come soon, will provide the music as part of its regular work; and so on—the division of labor carefully systematized and forming part of the curriculum. This would realize the best ideals of education, the actual visible use of the facts discovered by investigation and the combination of the facts into an artistic whole. Both these methods of presenting Greek (and Latin) plays are desirable and not dangerous; the danger comes when the preparation of such a play means an expense of enormous time and labor on the part of students and faculty in addition to their regular stint of work. This pernicious method has always been followed in other colleges to a greater or less extent: may it never gain a foothold here, and violate that sense of proportion and fitness which is truly Greek.

DEDICATION OF NEW GREEK THEATRE.

PRESIDENT WHEELER'S ADDRESS.

We dedicate today a new structure on ground already consecrated. The well-established usage of the graduating classes long since appropriated this hill-side to mystic rites and set apart this spot to be a temenos of Dionysos. These solemn trees that now look down upon us have acquainted themselves well through years of patient attendance with all the various ritual that makes up the service of the sovereign god of dramatic art, and here they stand today familiars to the romping satyrs and the trooping maenads and guardians of the sacred revels. This day they shall have joy beyond their wont to see the worship of the feast enacted by their old feathered friends of the tribe of birds.

In building our theatre on a site already dedicated we follow an ancient and honorable precedent. A hundred years before the old Athenians made the beginning of a permanent structure on the spot where now rest the glorious ruins of their theatre, the people had been used to assemble on the hill-side overlooking the old orchestra, the dancing circle at the southeastern foot of the Acropolis, to see the the choral dance and hear the plays of Phrynichus and Aeschylus and Sophocles, of Cratinus, Eupolis, and Aristophanes. As time went on they built for the spectators seats of wood, *ikria* they called them; they were veritable bleachers in the fact, and as bleachers often do, these once at least collapsed and once notably during an unusually interesting performance of a play of Aeschylus,—an occur-

rence which set people a thinking as well as smarting and turned their thoughts in the absence of Portland cement toward seats of stone. They built or tried to build at various times, but not until the drama was well toward the completion of its second century of residence in Athens did the good times of Lycurgus bring the stable building which after centuries of goodly use we now identify as the Dionysiac Theatre of Athens. That we in these our earlier days can partake in the great festival, can see openly, hear distinctly, and sit securely we owe to the munificence of his mother's son, William Randolph Hearst.

The university has long stood in sore need of an auditorium ample enough for its great meetings and the celebration of its chief festivals. Once it has used a huge tent and the winds sported with its roofing and would have none of it; once and again it tried the gymnasium, and the roof sported with the speaker's words till the wind bore *them* away; twice at least for the university's annual festival and repeatedly for others, it has trusted itself to the open California sky, and not having been deceived has learned that the Greeks of the West must follow the Greeks of the East. But temporary building for each occasion involved expense, toil and danger. A permanent structure was our great need, and help for our need came from a source hard by whence timely help has come before; and the fine spirit in which this help was given speaks in the giver's straight, simple words: "I am interested in this university and want to help it. This is no great thing, but it seemed to be a need and I am glad to supply it. I hope to be able to do more for the University in the future. I am particularly glad that the building takes the form of an ancient classical structure, for this accords with my own personal interest in the classics."

This building is the creation of its architect, but in its type and its details of design it is, I am conscious, as finely representative of the donor's personal taste, as in its solidity and its dimensions it is representative of his

strength and his largeness of heart. In behalf of the University, regents, faculty and students, in behalf of this great concourse representing the State which the university is set here to serve, I thank the giver for his gift.

ADDRESS OF W. R. HEARST.

My friends: Mr. Weed is responsible for the selection of this admirable and appropriate site and I wish to compliment him upon it most highly; Mr. Howard is responsible for the designing and construction of this beautiful theatre and I wish to express my sincere admiration for him and his work; my mother is responsible for the interest I have taken in this particular project and I wish to thank her most heartily.

As for me I feel very much like the small boy who belonged to the baseball team. Somebody said to him, "Sonny, what position do you play on the nine?" and the small boy said, "Oh, I don't play no position; I just belong." I feel as if I just belonged, and I am very happy to belong and very proud to be associated in some way with this great University. I believe that this University will eventually be the greatest in the world because it is the most thoroughly American.

It is thoroughly American and characteristically Californian, and no institution can possess both of these qualities and fail to reach the top.

I say it is thoroughly American because I believe that the essential elements of American progress and development are independence, equality and opportunity, and I think this University possesses and expresses in the highest degree the spirit of Americanism.

Many of the universities in the East are modeled on those abroad and are largely for the sons of the favored few. Many of them foster a feeling of sniffy superiority, a distrust of popular rights, of popular education, of universal

suffrage, of most of the things that have made this country great. Many of them develop a certain snobbish class distinction which ought to have been forever forgotten when this nation was founded.

They cannot encourage complete independence because they are themselves dependent on the endowments of a wealthy class and are correspondingly hampered and restricted by the timidity and prejudice of that class.

This University is dependent only on the State, that is to say, on the people.

Here there is nothing to prevent anybody—professor or student—from thinking, if he is capable of thinking, and, thank God, all of them are capable of thinking, and all of them exercise that blessed American privilege.

This University offers the most perfect independence, the fullest equality and the freest opportunity. It does not invite the sons of any special part of the community, but stretches forth its arms lovingly to the youth of the whole people. Here there is no distinction save that of brains and industry.

A university such as this is a superior public school and the crowning glory of our American public school system. Truly, I am proud and happy to be associated with it as I have the honor to be to-day.

ADDRESS OF JOHN GALEN HOWARD.

An architect feels that when he has said his say in terms of his own art, he has a right to be excused from verbal utterance. He may well paraphrase the epitaph of Sir Christopher Wren, upon whose tomb we read, "*Si monumentum requiris, circumspice.*" "If you would see his monument, look around." So I might say, "Would you have speech, hear this architecture."

The arts are so many languages,—various means of communication betwixt a man and his fellows. But as all

tongues are not equally intelligible, it is perhaps not unseemly that some sort of word-of-mouth commentary be given on what is spoken here in stone.

Not solely by the play of the imaginative faculties can architecture achieve. It must grow out of positive human needs and must conform with practical conditions. It is this art's peculiar privilege and its special difficulty, that it must stand on common sense, if it is to rise, untottering, to greatness.

If the building within which we are gathered fail of greatness otherwise, it has at least this merit, that it is built firmly on good stuff. Mother Earth hath no surer or more enduring foundation for work of man than these walls rest upon. No more lasting elements hath she than those of which this structure is made up,—for they are of her very fabric. This building springs, racy of the soil, out of the earth itself, of which it forms a part. In its erection we have returned well-nigh to the primitive methods of prehistoric time and built our house of mud. Ah, such mud pies as we have played with here!

And then we have essayed to come close to nature, too, in the very lines and form of our conception. We have taken our cue from the old-time hollow in the hills which all men knew as Ben Weed's Amphitheatre. And we have done as little as might be to change it, in bringing order out of its irregularities, stateliness out of its suggested opportunities. If its proportions are useful and agreeable, let the praise be Nature's. We have followed where she led, as simply and as closely as we could—wherein we have fallen short, call the fault not hers.

As we are using it today, the theatre is no more than a sketch of what we hope it will one day become. We have beheld a vision which in majesty and beauty shall in the fullness of time rival the temples of old Greece. Is it to remain a vision?

A filial gift to mother State from a son whose career is opening out in ever wider and more influential circles, this

auditorium has the added charm of being, in a sense, a filial gift to the human mother, for it contributes no mean share to that great scheme, the Phebe A. Hearst Architectural Plan. Sketch or finished work, it has been our aim to keep it worthy of its place in that supreme unit.

Countless suggestions in the interpretation of natural conditions have been taken, obviously, from the works of classical antiquity, but always with an eye open, I hope, to the dictates of our American—our Californian—civilization. This building is not merely an archeological study, though much consulting of antiquity has contributed to its creation. No line, no surface, no slightest detail, has been fixed in its design without the careful consideration of all the documents to which we have had access, in a spirit of deepest reverence for the past; nor on the other hand without a sincere and reasoned reorganization of every element (as I believe the Greeks worked with their antiquity) before it was permitted to enter into the completed scheme. The theatre is thus a closely woven web of old and new, of traditional methods and of free design.

We have tried to keep in mind the need of giving to our work a character at once graceful and dignified,—warmly pure in its detail, generously free in its proportions, delicate in finish, bold in modelling. If when completed, it prove to be all this, then indeed will it be something far better, for it will show itself one in spirit with this great University, and this great State.

As the plans for reconstruction of the University go on may we all keep in our minds and apply to each successive building, the words of the poet:

> Build thee more stately mansions, O my soul,
> As the swift seasons roll.
> Leave thy low-vaulted past.
> Let each new temple, nobler than the last,
> Shut thee from Heaven with a dome more vast,
> 'Till thou at length art free,
> Leaving thine out-grown shell by Life's unresting sea!

MEMORIAL EXERCISES IN HONOR OF MARTIN KELLOGG.

On Saturday, September 19, 1903, memorial exercises were held in Hearst Hall in honor of the late Martin Kellogg. Commemorative addresses were delivered by Professors W. A. Merrill, W. B. Rising and G. H. Howison, and an address by former Regent Columbus Bartlett was read, in his absence on account of illness, by his son Louis de F. Bartlett.

ADDRESS OF W. A. MERRILL.

It has been my great good fortune to be associated intimately with the late Professor Kellogg for nine years. Before coming to California I had known him through the reputation produced by his edition of the *Brutus* of Cicero, and my first correspondence with him was on some points of criticism suggested by his commentary. Earlier he had published portions of Cicero and Quintilian, and throughout his life these with Horace were his favorite authors. At the opening of his teaching career he gave instruction in mathematics, and in the early years of this university he occupied the undivided chair of Greek and Latin. As the University grew in numbers and a separation of the work was advisable, Dr. Kellogg chose Latin rather than Greek, and occupied the Latin chair unil his elevation to the Presidency. A suggestion that he continue as Professor of Latin in con-

nection with his higher office was modestly declined, but during his entire administration the welfare of his old department was very near to his heart.

On his resigation of the presidency he returned to the department as Professor Emeritus, and although he had already earned the rest implied in the title, he insisted from the beginning on doing a man's full tale of work. He died in harness: *felix opportunitate mortis.*

Dr. Kellogg was a Roman. By nature sympathetic with Roman ideals, his character was profoundly affected by his intellectual contact with the works of that great people. Like most professors of Latin of the last century he early developed administrative powers and for many years was active in the administrative work of the university. Roman order, discipline, thoroughness, and above all, reverence for law were prominent traits of his character. He learned to command, did command our academic ship; but on his return to the ranks no member of the faculty was more loyal to his President, to his departmental chief, and to the Faculty. The slightest expression of wish in departmental matters always met with the first response from him; were any reports or any information called for from members of the staff, his was the first response. None had so delicate a feeling as he for the prerogatives of academic rank.

He appreciated as few do the admirable constitution of the University, the safeguards and checks on every hand which have as their object our academic liberties and those of our students. He was conversant with the long lists of precedents governing the action of the Regents and Faculties, and from his retentive memory at every need his colleagues could learn the legal bearings of any contemplated action,

In his interpretation of Latin authors Professor Kellogg was a humanist. He valued Latin literature less as a basis for grammatical exercise than for its bearing on actual life. Hence, when with ripe experience of years, after the turmoil of the presidency he returned to the interpretation of Horace, in his St. Martin's summer, he brought to that office a wealth

of allusion, an urbane wit, a knowledge of men and things utterly beyond the ability of a younger man.

As an active minister of the Gospel in early life, the soberness and religious character of the uncorrupted Roman of the time of the Republic attracted him. The Stoic ethics, as interpreted by Cicero, was particularly congenial to his nature, and for this year he had given laborious preparation to the interpretation of Cicero's Offices, Roman frugality, unobtrusive piety, faithful obedience, fidelity to duty at any cost—these were his virtues also. His way in life was to act, not to talk; to be, not to seem; not to promise; for the Romans, says Ruskin, did more and said less than any other nation that ever lived.

Another Roman virtue was patience. They suffer, they are silent, said Cicero. Man is born to trouble as the sparks fly upward, and the evil which falls to every human lot, whether it comes in the vigor of youth, the strength of middle life, or in the infirmity of age, in a man's varied relations, he bore without repining. In quietness and confidence was his strength. The end crowns the work; he waited patiently for that end and serenely confident of the final judgment.

And fortitude and temperance were his also. Brave in maintaining essentials although yielding in less important details, even and placid in disposition, he kept himself under with thorough self-control. Whatever was going on behind that sphynx-like contenance even his closest friends could only surmise. Self-reverence, self-knowledge, self-control—these led his life to sovereign power. He was willing to listen to every argument, but the decision was his own, and frequently registered without apology or explanation.

He was systematic in his conduct of life; and his time was well ordered. And here again Roman system and order were traits of his character. Never hurried, as provision had been made for each task in its proper sequence, he administered his life so well that even the Censor Cato would have approved. And when the end came all was in order;

nothing was left undone. *Iustus et tenax propositi sui*, which was to live a life of usefulness and of stainless integrity, he has joined the great majority. His influence and his example will abide with us long. *Vir strenuus, honestus, pius, fidelis.* May our end be as his.

ADDRESS BY W. B. RISING.

The lot of taking part in these exercises has fallen to me because of my longer acquaintance and longer association with our deceased colleague. My part will be to present to you the statistics of his life.

President Martin Kellogg, youngest son of deacon Allyn Kellogg, was born in Vernon, Connecticut, March 13, 1828. He was a descendant in the eighth generation of Martin Kellogg, of Braintree, Essex, England, who was born November 23, 1595. Martin Kellogg was a family name and appears many times in the family genealogy. President Kellogg had one brother older than himself, who was graduated from Williams College and afterwards entered the ministry, but was obliged to give up that calling on account of a growing infirmity. An uncle was for many years a professor in Williams College. Of President Kellogg's early life but few particulars or incidents have come under my notice.

In a charming artice contributed to the *Overland Monthly* under the title "My Grandfather's Farm" he has himself given us a glimpse of his boyhood days: "In a quiet country town of New England is a farm that used to be my earthly paradise. My own father's place was pleasant in its way, but it called for a little too much work from the time when a boy could ride a horse to plow out corn or follow the hay-cart with a rake. My grandfather's farm, on the contrary, was a place for infinite leisure and sport. The standing invitation he gave was to 'come down and do up the mischief.'" He closes with the following: "Enough

as to the farm and farm-house. They were but the setting for their precious jewels—the human hearts and lives that found there a home. The head of the house was born on the spot, and was a genuine son of the soil. Modest, yet self-reliant, kind to all, but a sturdy supporter of justice, well balanced, full of uncommon common sense, of the strictest integrity, respected and beloved by his neighbors, often an arbiter in personal differences, called not unfrequently to places of public trust, this plain New England gentleman was the type of a class that grows ever smaller in New England. It was from the best blood of the puritans and had the puritan steadfastness and energy, blended with the old English heartiness and the true New English devotion to the well welfare of others. Of my grandmother it is enough to say that she was a helpmate for such a husband—self-forgetting, generous, lovable, sensible, beneficent. Her descendants rise up and call her blessed. In my humble opinion it is hard to find a finer type of character than that of this farmer and farmer's wife. * * * ." He closes this sketch in the following words: "I lately passed the old spot, on the new railway skirting the hills. The house does not look as large as it used to; the trees are thinned and a little dwarfed. The whole valley is somewhat neglected and degenerate. So passes away the glory of many an old New England community."

President Kellogg received his preparation for college at Williston Seminary, Easthampton. He entered Yale College and was graduated in 1850. As the most distinguished scholar of his class he pronounced the valedictory oration on his commencement day. In his class he was the warm and intimate friend of Professor H. A. Newton, the distinguished astronomer of Yale college.

After his graduation he entered Union Theological Seminary, 1851–52. He then spent a year, 1852–53, in Andover, returned to Union, 1853–54, and graduated. He was resident licentiate in Yale 1854–55.

At this time he turned his eyes westward. attracted by the needs of the Pacific Coast. He became a home missionary, came to California in 1855 and was settled in Grass Valley and Shasta. From 1855 till 1861 we find him doing home missionary work among the miners and gold-hunters of that day.

In the meantime Dr. Durant, who came to California a self-appointed missionary of education, had brought together the most hopeful and helpful men of the coast, and the college school was the rallying point of the higher education. When the time came to open the college in August, 1859, the trustees met and elected two professors, Dr. Durant and Dr. Kellogg. No fitter appointments were ever made by any board of trustees; Durant, the untiring, self-sacrificing missionary of education, and Kellogg the quiet and accomplished scholar. In 1860 the college opened with eight students.

The friends of the college of California soon realized, perhaps a little reluctantly, that they could best serve the cause of education by joining their forces and means to the state university to be created under the Morill bill. President Kellogg was from the first an active supporter of this policy. He was professor of Latin in the College from 1861 to the time when the college gave up its existence to the University in 1869.

On September 3, 1863, President Kellogg was married in Ellington, Connecticut, to Miss Louisa Wells Brockway. Two children were born of this marriage, both of whom died in infancy. It would be impossible to convey the sorrow and sadness which the death of these children brought to parental hearts. Their birth had awakened the fondest hopes and ambitions, which their death destroyed. The whole current of their after lives was entirely changed.

In September, 1869, the University of California opened, with President Kellogg in the chair of Latin and Greek. In 1874 President Gilman accepted the Presidency, and in the work he was called to do he found Professor Kellogg

one of his wisest and most loyal supporters. He was the dean of the College of Letters from the beginning up to 1885. In 1876 he was relieved of the Greek language, and his title became Professor of the Latin Language and Literature. Upon the resignation of Hon. Horace Davis in 1890 he was made acting president, 1890–93. Ih 1893 he was made President, inaugurated on Charter Day of that year, March 23, 1893, and on that day he received from his Alma Mater the honorary degree of Doctor of Laws. He resigned the Presidency of the University in 1899, and in September started with Mrs. Kellogg on a trip around the world. He returned the following year, and took up again the work of active instruction, which he continued almost to the day of his death.

1874 to 1876 he served the town of Berkeley as President of the Board of Education. In recognition of his services the first school organized in the town was named the "Kellogg School."

During his nearly half-century's residence on this coast, he served the Congregational Church in almost every position, minister, deacon, trustee, liberal supporter.

His earthly career closed August 26.

Cherished be his memory.

ADDRESS OF COLUMBUS BARTLETT.

We have met to-day to honor the memory of Dr. Martin Kellogg. His life was a part of that of our University, so long had he been associated with it as professor and president: so closely identified with it in his hopes, and his endeavors; and so deep the impress that he made upon its work and its ideals. As one who knew him well—as his co-worker in the Board of Regents, I am here to pay a loving tribute to his memory.

For a number of years prior to his elevation to the presidency, the University had been struggling against adverse circumstances and it was yet a question whether

it would finally take its place among the great institutions of learning.

Before the passage of the act of 1887, by which a tax of one cent on each one hundred dollars worth of property assessed in the State was paid for the support of the University, its income was uncertain, and dependent upon the caprice of every session of the Legislature. It was necessary for the President to visit Sacramento during each session and to lobby for a sufficient appropriation to conduct the institution for the next two years. Under these conditions, progress was necessarily slow and intermittent. Added to that, the University's constant change of presidents prevented the adoption of a strong educational policy which could be consistently carried on. The presidency of the institution seemed to have knocked about from pillar to post, there having been no less than five presidents, or acting presidents, between the years 1885 and 1890. The faculty, also, suffered in this period of unrest. It was torn by internal dissensions and by pulling at cross purposes.

The first thing that led to a better condition of affairs was the passage of the one cent tax, making the revenue of the University certain and definite. The next thing was to find an administrator to place in charge of the growing institution who could harmonize all the conflicting elements in the Faculty and in the Board of Regents, and adopt a strong and consistent educational policy to which the institution could be committed for a number of years. But the task of securing such a head for the University was not an easy one.

President Eliot of Harvard University, wrote me in 1890, when, as Chairman of the Committee of the Board of Regents on the appointment of a President, I wrote him for advice:

"I feel under a good deal of embarrassment in replying, for my observation is that gentlemen imported into California to fill this office stay but a very short time.

"It seems to me that the Regents might best seek a gentleman who has been long enough in California to understand the government, resources and prospects of the University, and to be known somewhat to the community which he is to serve.

"Is there not someone among the Professors of the University who might be promoted to the presidency? A professor of true merit who has already lived at Berkeley some years and is favorably known to the graduates of the University seems to be the most natural candidate for the vacant place.

"In your case, it seems to me that you run another considerable risk if you take a president who has not lived in California. The tenures of the presidents of your University for the past twenty years have been very short and for the sake of the University, it seems to me very desirable that you should now get a president who will hold the office for a respectable number of years."

At about the same time, President Daniel G. Gilman of Johns Hopkins University, wrote:

"I doubt whether there is anyone who can fill the post of President of the University of California so well as Professor Martin Kellogg. He knows the situation thoroughly; he has learning, tact, fidelity and the ability to make a good speech. He has excellent business habits, and he resides in Berkeley. I feel confident that his selection to this important post would never be regretted."

The opinion of President Gilman was shortly afterwards embraced by the Regents, and President Kellogg was made acting president and later, President of the University of California.

Among the principal problems that confronted his administration were: First, the harmonizing of conflicting elements in the faculty so that all should work together for the common good, and the strengthening of the faculty by the addition of strong men and the elimination of weak ones. Second, the extension and broadening of the Uni-

versity's work; and third, the creation of friendly and useful educational relations between the University and the secondary schools.

During the first years of his administration, the president was assisted by a committee of the regents known as the Committee on Internal Administration, on which I had the honor to serve. To this committee many of the questions that arose between the Faculty and the President, and the Faculty and the students were referred, and it was while thus associated with Dr. Kellogg that I learned to appreciate his real worth.

Though his was an excessive modesty, and though always careful not to force or obtrude his views upon others, his character was strong and his judgments sound. His counsel was always sought for and always worth having. In speech he was direct and clear, and his grasp of all subjects discussed, thorough. His sincerity and his earnest desire to do justice to all were dominant qualities. In discussion, his attitude was judicial and his judgments marked by a deep charity toward his fellow men. These are the qualities that won for him the respect and coöperation of the Faculty, and that prepared the way for the greater educational growth that was to come to our University. With a united and progressive Faculty, animated by high ideals, the University made rapid strides toward its rightful place among the foremost educational institutions of the land.

The years that followed his inauguration as President brought ever increasing numbers to these halls. The problems of housing them and of providing the highest character of instruction for their needs were indeed difficult. How well they were solved is well known to you all. From a comparatively small institution composed of a few literary colleges and technical scientific schools, a great and unified University has been built. A college of natural sciences and a college of commerce were founded, and a great impetus given to graduate study. Work in biology,

in others of the natural sciences and in art, received great encouragement and the complete and rounded development of a great institution began. The Affiliated Colleges came into closer relations with the colleges at Berkeley, and in them, too, the vivifying influences of a broad and scholarly policy soon made themselves felt.

While these changes were taking place within the University, Dr. Kellogg realized that they would redound to the benefit of the State in proportion as they reached the body of its citizens. As he wrote in his annual statement for the year 1897–8:

"The social and civic welfare of a community is the thing of highest value. There must be men and women of approved character who will be intelligent and influential examples of integrity and a power for good,—an unfailing stock to draw upon for the highest public service. Such citizens are the product of an education both broad and high."

To accomplish this he realized that the roots of the University must be in the hearts of the people; that the sap that is to nourish the tree of wisdom and of life, that is to spread its broad and sheltering branches over the State and Nation, must come from the heart blood of the sons and daughters of California.

How was this to be accomplished? How was the University to be put in touch with every citizen of this State? How was every community, nay, every family to be strengthened by University culture? This question could be solved only by making it easy for everyone to come to the University, not by lowering the University's standards, but by multiplying the avenues by which it can be reached; in other words by bringing it into closer relations with the secondary schools. During Dr. Kellogg's administration, this system, though not inaugurated, was established upon a firm basis and attained the highest success.

The love of the State for its University, not as an idle sentiment, but as an appreciation of its power for good, of

its ennobling influence upon the lives of the men and women who throng its halls, as the creation of good citizens, honors the memory of man far more than graven stone or marble mausoleum. And as one who has been a chief worker toward this end, the name of Dr. Martin Kellogg will always be held in grateful and loving memory by every Californian.

ADDRESS OF G. H. HOWISON.

We are once more assembled, after what seems indeed but short surcease of sorrow, to give expression to our sense of a great loss, a bereavement of the University and the community alike. It is only a brief two years since we gathered here to honor the memory of Joseph LeConte; and now we are summoned, too soon for our wishes, to note the passing and commemorate the services of Martin Kellogg, the last of the three high spirits to whom the wise judgment of our first Board of Regents committed the serious task of inaugurating the internal life of the University. John LeConte, Martin Kellogg, Joseph LeConte,—these, in the order of their appointment, were the three men, genuine scholars and weighty characters, to whom was intrusted the work of planning and setting in operation the institution which it is no exaggeration to call the most important organ of the spiritual life of this State. Sincere and unreserved can our gratitude be to the Regents, who by these admirable appointments so truly fulfilled the trust committed to their care. How worthy a triad our three notable founders of the Faculties formed! And now that the last of them, after the longest service, has gone from us, we can perhaps make something like a just estimate of his contribution to the great cause which we all have so much at heart.

In setting out upon this estimate, while we credit to the full the part taken by the Regents, and even more by the first two Presidents of the University, Durant and Gilman, let us not fail to recognize that the real designers and inaugurators of the internal organism of the institution were

John LeConte, Martin Kellogg, and Joseph LeConte, acting in sympathetic concert. Nor may we neglect to go in some important regards farther, and realize that Martin Kellogg was the founder of the University, and of its interior life, in a sense in which neither of his distinguished colleagues was, or could be. He was the first and chief connecting-link between the University and its forerunner the College of California. It is simple matter of history, made also matter of record and solemn authentication in the Organic Act establishing the University, and afterwards incorporated in the State Constitution, that had not the College previously come into successful existence through the devoted efforts of a group of men, chiefly, like Professor Kellogg himself, educated at Yale,—and had not the self-renouncing public spirit of the Trustees of the College, among whom were graduates of Harvard, Dartmouth, and Hamilton, as well as of Yale, led them to disincorporate and give the State their whole property for the sake of a greater institution,—the University would never have come into being; never, at any rate, as the comprehensive home of wide culture and humane research that it actually is; if it had come at all, it would only have been as a School of Applied Sciences. It is therefore but plain justice that now, in law as well as in settled public opinion, the old College is recognized as a part, and the inceptive part, of the University; so that Professor Kellogg, who was identified with the College from its beginning, as one of the two professors first appointed in it, was in fact the only member of our interior body who had belonged to the institution from its very origin—even from its prenatal days. For three-and-forty years he had been its unceasing builder and its devoted servant.

In these hours of commemoration, to be sure, we must not and cannot forget the part played by a preëminent associate of Professor Kellogg in the College—Dr. Horatio Stebbins, the last president of its Board of Trustees; without whose planning wisdom and public skill, the acceptance of the proposals made by the Trustees of the College would

probably not have been gained from the State. But prominent founder of the institution though Dr. Stebbins unquestionably was, passing over from Trustee of the College into Regent of the University, to exert for twenty-six years a commanding influence in the Board, and deep as is the debt we all to-day owe him, and shall continue to owe him so long as our State endures, Professor Kellogg was our founder in a yet more intimate, a still deeper sense. It was in his person first—though, later, also in that of President Durant—that the great, the vital principle of comprehensive humane culture, essential as the organizing factor in the life of the new institution, passed forward from the narrower field it held in the College into the vastly enlarged one afforded by the University. Fortunate was it for him, fortunate for us his successors, most fortunate for the State and its coming generations of youth, that his two eminent colleagues, John and Joseph LeConte, though appointed to represent the sciences of Nature, were both men of genuine and disciplined love of Man. Fortunate also was he, and fortunate the University, in having for first President so accomplished a scholar in the large humanities, so penetrating a thinker of the Platonic type, as Henry Durant. The happy and cordial coöperation of these four minds effected the first surveys, and the secure opening, of the broad roadways which we now possess to an inclusive culture, based on sound learning in letters, in science, and in philosophy. It was this that made us a *University*, a body of scholars *in diversis versati in unum versi;* occupied with things diverse, but all bent on *one* thing—the fulness of a high human character, with all the enlightenment, all the refinement, and all the devotion, that goes to its making.

So this day is one of grateful commemoration rather than of sad lament, this hour an hour of consolation rather than of grief. Grief at our profound bereavement we do indeed have, and cannot but have; for we miss the converse of our revered and admirable eldest brother; and, long as he had been here, we yet feel as if we had lost him all too soon, so

intact did he still appear both in body and in mind, so stable in a quiet maturity that kept its powers of judgment, and even of acquisition, quite unimpaired: so much so, that he might well have said, turning Solon's words into his instinctive Latin, *Senesco continenter discens*,—finding, as he did, on his return to his chosen studies and teaching, insight fresher than of old, with a still keener relish for imparting it. But though his removal from among us seems thus unexpected, and for us so untimely, we cannot but have its pang softened by a consoling sense of what he was and what he succeeded in effecting. Our comfort is in our confidence that what he was, and the results he has left us, are alike for us imperishable.

Accordingly our truest use of this memorial hour will be the meditation of his excellence—excellence of public service, founded on excellence of character. For never, I suspect, was there a man of whom it was more true that what he officially did was the outcome, simple, direct, and almost unstudied, of what he inwardly was. So let us consider awhile his work, and afterwards the very marked character in which it had its source.

I.

Of our honored colleague's exterior achievement—the biographical framework of his career, his attainment of successive professional positions, and, especially, his execution of his duties as this was seen by his colleagues in the Board of Regents—you have already heard from the speakers who have preceded me. Our part now is, rather, to recall the successive aspects of his work in our more interior academic life, and report our sense of its quality in the several functions he fulfilled there; to tell also how he bore his part as a citizen, interested in all the problems of public education and in public problems generally. We may get in this way some definite sense of the debt which we all really owe him, both we of the University and you of the Town and of the State.

All of his work was viewed and directed by him with the single eye of the sincere scholar, devoted to his professional ideal as it was given him to understand this; and his understanding of it was clear and high. His scholarship was sound and real, coming from a genuine vocation for the field in which his studies and his professorial labors fell—the field of classical literature and archæology, especially that of Rome. He came to his baccalaureate at Yale, to be sure, an all-round young scholar, standing foremost in his class, and at the time of his first appointment in the College of California still retained so much of this comprehensive accuracy as to be fitted for the duties of a mathematical professor—which he was at first appointed—as these were at that time usually conducted. But there can be no doubt that his bent was to classical letters, to the historical understanding of the ancients, and most of all to the study of their oratory. Further, though his first professorship in the University covered the whole field of the classics, Greek as well as Latin, it is plain that his nature engaged him to Rome rather than to Greece. The sober pragmatism of his mind, its earnest demand for power to turn all ideas into serviceable action, and for a test of all thought by its practicability, was naturally repelled a little by the speculative and poetic freedom of the Greeks, which in taking wing seems to set responsibility at defiance, and thus to prepare the way for a deserved catastrophe in the political and historical failure which befell it. His whole character, indeed, was Roman, as we shall clearly see when we later consider it in detail. It is therefore only natural to find him erelong shifting to the more definite professorship of the Latin language and literature, as the university department of which he was so long to be the successful head; and every bit of his published work in the formal capacity of scholar is concerned with Latin only. Here was his province, and all of his published performance bears out his right to it by patent of nature and of power.

His native modesty, his almost shrinking reserve, his

horror of superfluity, led him to be chary of publication. Yet he signalized each important stage of his professional career by an appropriate issue, though for each he required the motive of some practical need, manifest and pressing. Thus, soon after taking charge of the Latin chair in the College of California, he published an essay on *Latin Pronunciation*, which was then a subject of urgent practical debate in the schools. In this he presented the argument in favor of the English Method, as it is called, with a brevity, comprehensiveness, and solid good-sense that could hardly have been surpassed, showing himself in full possession of the points of the discussion as scholars then understood them; and, in adhering to the pronunciation which the scholars of England all maintain to the present day, he displayed, as I for one am willing to declare, what may well claim to be the soundest judgment for English-speaking people. His own practice in our university instruction, I suppose yielded at length to the increasing pressure of prevailing usage in the United States; but this was the effect of another factor in his uninsistent, modest, and practical nature, his nature as a Roman of the patiently enduring type; though we can easily imagine that all the while he "thought to himself" quite the same, in spite of the outward concession.

Next, in discharge of his duties as Latin professor in the University, he early made a selection of passages from Cicero and Quintilian, constituting together, in the order in which he arranged them, an almost consecutive treatise on the right practice of eloquence. To this, borrowing the hint from the *Ars Poetica* of Horace, he gave the title of *Ars Oratoria*, annotating it with sententious brevity, excellent judgment, and ample learning. As one runs the eye over its pages, and notes the deep ethical foundations upon which these two noble Roman writers declare that true oratory must be built, it is easy to see how the editor, Roman as he too was, though illumined by Christian light, laid much store by the all but Christian morals of these two great minds, and thought no brief course of reading in the Latin

classics could better be offered to modern youth than this compilation from them. And, indeed, he was well within his right. Significant of the quality in Cicero's thought upon which our high-minded colleague based his judgment is this sentence, written in October 1873 by Josiah Royce, then a youth, and a student under Professor Kellogg, on the fly-leaf of his copy of the *Ars Oratoria*:—*Nihil est aliud eloquentia nisi copiose loquens sapientia.** And of yet deeper tenor are these sentences, samples only, in the selections from Quintilian:—*Sit ergo nobis orator is, qui a Catone finitur, vir bonus dicendi peritus; verum, id quod et ille posuit prius, et ipsa natura potius ac majus est, utique vir bonus. . . . Neque enim tantum id dico, eum, qui sit orator, virum bonum esse oportere, sed ne futurum quidem oratorem nisi virum bonum. . . . Oratoris vita cum scientia divinarum rerum sit humanarumque conjuncta.*† No wonder that the serious heart, the refined judgment, of our colleague echoed deeply to sentiments like these; to such, surely, every mind rightly bred will echo, now and always. No wonder that our scholar asks, in his brief and pungent note on the passage from which they are taken, "May an advocate defend a bad cause?" and then replies: "Those who, at this late day, and in a Christian nation, answer in the affirmative, are respectfully referred to this decision of the old Roman teacher, *Certe non convenit ei, quem oratorem esse volumus, injusta tueri scientem, . . . neque defendet omnes orator.*"‡

Finally, in 1889, while abroad on leave of absence after eighteen years of unbroken university service, Professor Kellogg published the results of the studies which he had silently and unobtrusively been pursuing, in such leisure

* "Eloquence is nothing but wisdom speaking aboundingly."

† "For us, then, be he the orator, who is defined by Cato as *a good man skilled in speech;* in truth, that which this great man put first, and is by its very nature preferable and greater, namely, a *good man.* . . . For I do not merely say that he who is an orator ought to be a good man, but that he will not be an orator at all, unless he is a good man. . . . Be the orator's life bound up with the knowledge of things divine as well as human."

‡ "Surely, it becomes not him whom we are willing to rank an orator knowingly to protect injustice, . . . nor will the orator defend all men."

as he could command,—I mean his edition of the *Brutus* of Cicero. The reception of this by leading authorities in England settled the question of his scholarship, if this needed testimonies, and yet the settlement very likely came with a sudden and half-rebuking surprise to many who had known him long as a townsman and friend, or even as a colleague, but through his excessive modesty and his retiring silence had been prevented from suspecting the breadth and the thoroughness of his learning. Fortunately, you have not in this matter to depend on the slenderly qualified judgment of your present speaker, but can resort to the highest critical opinion of scholars abroad. Said the London *Athenæum*, in its issue of February 8, 1890: "This valuable contribution from the University of California towards a study of Cicero's oratorical works will open British eyes to the development of classical studies in America. It is quite worthy to rank with Professor Wilkins's *De Oratore* and Dr. Sandys's *Orator*. . . . The commentary is excellent." The *Saturday Review*, which is nothing if not fault-finding, and can never forego an ill-natured fling at any hole discovered in an American coat, said, in its number for July 27, 1889, after some of its usual captious remarks: "In respect to the historical, literary, and archæological allusions, and in its admirable indices, Professor Kellogg's book deserves the highest praise." And, in the London *Classical Review* for October 1889, Professor Sandys himself wrote: "The work deserves to be warmly welcomed in England." After some criticisms upon sundry minutiae, he added: "The book as a whole is such an excellent piece of work that it ought to be extensively used by English-speaking students on both sides of the Atlantic."

We can therefore take a just satisfaction, secure from every apprehension, in the work of our colleague as a scholar. It was quiet, unpretending, unheralded, but solid, accurate, judicious, of a true distinction.

On his return from Europe in 1890, Professor Kellogg began his service in our highest administrative office. In

reality, if not in form, he was President of the University from that time, though he began his duties under the title of Acting President, which the Regents conferred upon him, together with a seat in their Board, when his colleagues of the Academic Council elected him to serve as their chairman during the vacancy in the office of President. In 1893, after a long inquiry into the merits of presidential candidates, the Regents by a pronounced majority appointed him President, confirming the already expressed choice of a still stronger majority of his colleagues; these had long before tested his administrative quality, first by his many years of service as Dean of the Faculties, and later by his performance as their chairman during a previous vacancy in the presidency. He voluntarily laid the presidential office down in the summer of 1899. In effect, then, he was the actual head of the University for nine years, and we had the benefit of his administrative abilities noticeably longer than those of any President who preceded him.

It is only the simple truth to say that he displayed in this office administrative traits of a very high order, and brought to the University various advantages of the utmost importance, during a period grave with many impending dangers. Into the internal life of the University he brought an increase of harmony, and into its relations with the public schools a distribution of reciprocal confidence and sympathy. The results were presently seen in a growth that became remarkable and, with an attendant and equal improvement in the chief internal relations, gave to his administration the sanction of visible success. The nine years of his presidential service saw the attendance of students at Berkeley increase from less than five hundred to more than seventeen hundred, and in the whole University, inclusive of the Professional Schools, from less than eight hundred to more than twenty-four hundred. During the same period, the staff of instruction at Berkeley and at the Lick Observatory grew from something over fifty to more than a hundred and fifty—professors, instructors, and

assistants—and, in the entire University, from a hundred and twenty-five to upwards of three hundred and fifty. That is, during his term of service he saw the total number of students multiplied three times and a seventh, and the total of the teaching staff twice and four-fifths; while at Berkeley, alone, the student attendance was not far from quadrupled, and the staff was nearly trebled. He also had the gratification of seeing the Legislature, in response to these striking proofs of the growing importance and increasing needs of the University, double its resources derived from the permanent annual tax, which was enlarged from one cent on each hundred dollars of the total valuation in the State to two cents on the same. Numerous and important new buildings were added and equipped; new laboratories were established, among them the laboratory for experimental psychology; abundant scholarships and fellowships were founded; new professorships were organized and filled; and the Phoebe Hearst Architectural Plan was projected and carried to a completion that commanded the respectful attention of the world. Answering to all these increments of external resource and advantage, the academic life within grew more complex and richer; the quality as well as the scope of the work improved; so that the institution could justly claim to have become one of the great centres of educational life, and was everywhere acknowledged to be such.

Hence, when our honored friend laid his office down and took his well-earned respite from its burdens, he could do so not only with the consenting commendations of his associates in the Faculties, but also with the best-founded sense that his labors had in fact not been in vain: that he had conferred upon the institution, in addition to all the advantages which his earlier services had brought, still other and even greater benefits; and that he was handing the University back to the Regents stronger and greater in every respect than it was when he received it from them. His had been, as already mentioned, much the longest term

of presidential duty known in the University hitherto; and not the least service he had rendered, I judge, was his breaking the baleful precedent which had led the outside world to assume, no matter how incorrectly, that our presidency was under some dark hoodoo, so that it was impossible for a capable administrator to continue long in office. That there was little or nothing in this outside assumption is undoubtedly true; but it was none the less harmful; and a great good was done when at length it was effectually dissipated.

It remains now to speak of his more general activities —of those employments which concerned him rather as a citizen than as a member of the academic world. Somewhat silent scholar though he was, he had a deep sense of civil and political duty, was active as a citizen, and carried weight as a judge upon all important public questions. Yet all these he constantly approached in the temper of the cultivated thinker, the studious scholar. Hence his services as a citizen take chiefly the form of public addresses or of published writings on questions of public concern. A partial collection of these, from various sources, forming a considerable volume kept in the University Library, shows the scope, the earnestness, and the weight of his thought on important issues of his time. This list of twenty-five papers is manifestly but a portion of his whole product, as it only covers the period from October 1873 to October 1893; yet the range of topics is large and important— common schools, higher education, careers for scholars, endowments, literature and art, morals and religion, character in relation to politics, historical research, the labor problem, and so on. That he continued this activity long beyond the latest date of this collection, throughout his presidency and nearly to the end of his life, we all know; and part of our duty to his services and his memory would clearly seem to be, that a proper collection of his occasional writings, duly selected from his whole period of production, should be made, and published in permanent

form. He was, as we also know, in love with oratory—which he regarded as a fine art, strictly creative—and was himself master of an excellent style, superior in clearness and in diction, sound in idiom, agreeable in tone and color, and of a simplicity suited to the man.

If we look, then, at the actual work achieved by our colleague, whether as contributor to our foundations, as scholar, as head of department, as head of the University, or as public character generally, it is impossible not to assign to him, though in his sensitive modesty he would have been the last to claim and the most loth to accept it, the meed of a signal success. A gladness, comforting in the midst of our loss, irresistibly pervades our thoughts when we thus realize that we have had for so many fruitful years—yes, almost without knowing it—the professional and social companionship of a man, a scholar, an administrator, a citizen, of unmistakable and most decided mark. His memory will blend naturally and worthily with that of the brothers LeConte, adding permanent lustre to the institution which he so long adorned, and to the Town and the State of which he was so serviceable a member.

II.

And yet, when we now go on to ask for the explanation of all this excellent performance, it will become evident that, as I have indicated already, the cause was not in any calculated plan or studied policy, carefully contrived and applied. This success in action was, rather, the spontaneous expression of a deeply-seated character, bred in the man quite apart from any of his fields of effort, and independent of them. The explanation is, in short, the man himself. There are two sorts of successful endeavorers, two methods of success: one wins by character and talent working after plans the most deliberately thought out and the most adroitly applied; the other wins simply by applying and exercising the indwelling character, as circumstances give it opportunity or the settled occupation affords it field. Success, in

this latter case, when the success is in great things, is the highest witness to great character; and then the study of the character becomes in a high degree interesting and significant.

The success of the friend who has gone from us, his varied achievement as educational founder, as scholar, as administrative head, as citizen, was owing, I repeat, to this spontaneous expression and application of character. We are led, then, to detect, if possible, and to describe, what this so effective character was. What were its leading traits, and how, perchance, did they come to be?

I think we can best gain the clue to it by noticing that its possessor accounted his main vocation to be the stimulation of virtue by the teaching of Latin literature. That is, *he liked things Roman*, and thought them good for discipline in goodness. His was a Roman character by nature, I have said; and I am convinced he came by his profound practical interest in things Roman, not so much by any reflection and deliberate decision as by the instinctive sympathy of his native disposition. He came in sight of Roman things, and he recognized his own; they appealed to him, and he responded. The impression this disposition made, even early in the course of one's acquaintance with it, was distinct and not to be evaded. Unpretending simplicity; plain directness; homely urbanity; reticence and reserve; something of taciturnity; steadfastness without aggression; equipoise, patience, endurance; moderation of all sorts; an unruffled temper; attachment to home, to kindred, to country,—these were the traits that struck one, the traits that continued always and everywhere; and they were all of them Roman. They were moreover the traits that made the Roman a Stoic by nature, giving him over beforehand to the Porch when its apostles should arrive. So, too, our colleague was a Stoic by nature; and yet we must not forget that he was a Stoic who had received baptism, inwardly in the spirit as well as outwardly in the body. He was thus a Roman who had heard the Gospel and had believed it,—

to the illumination and redirection of his nature, indeed, but not to its erasure, not at all to its elemental change, not even to the dislocation of its members. One trait he had, however, which we must not overlook, and which we usually miss in the Roman—his dry and quiet humor; and this we must no doubt refer to the New-Englander that was unquestionably present in his heritage.

But in other traits he seemed wholly of the Roman type; though, to be sure, of the Roman no longer on campaign and in the field, *militiae ac belli*, but *domi*, rather,—come home to his *otium*, his furlough in the gown and the toga. A sort of christianized Seneca he looked, and such in fact he was,—

> . . . . . Discerning to fulfil
> This labor, by slow prudence to make mild
> A rugged people, and thro' soft degrees
> Subdue them to the useful and the good.
> Most blameless was he, centred in the sphere
> Of common duties, decent not to fail
> In offices of kindliness.

We can set his character best, I think, in the frame of the Four Cardinal Virtues of the ancients, especially as these took color from the Roman Stoics and the Roman habit of feeling. Wisdom, Temperance, Justice, Courage,—these sum and array his "lords of life"; but they do so best when named and interpreted in his familiar Latin: *Prudentia*, *Modestas*, *Justitia*, *Fortitudo*. He possessed them all; or, rather, they quite possessed him; together they summed up his being: Prudence, Moderation, Justice, Fortitude. Only, in him, spiritual baptism had transformed and heightened Prudence into something that cast its foresight beyond the present world of fleeting circumstance, though it still remained effective there; while over all the other Virtues reigned Moderation, as the controlling and toning bond: the *Ne quid nimium* of his kindred Stoics seemed the ruling precept in all his excellence. So, in Fortitude also he read the Stoic measure: the lofty and all-enduring *apatheia* that

spoke in the Stoic *In utrumque paratus* was next to the dominant principle of his life. The issue of circumstances, friendly or adverse, not much perturbed him: *idem semper vultus, semper idemque frons.* Only, again, this Indifference too had received baptismal sprinkling, and he, as we may believe, was ever saying inwardly, not *Do thy part and leave the rest to Fate*, but *Do thy part and leave the rest to God.* To the Four Virtues of the Stoics, his acceptance of the Gospel had added the Three of St. Paul; so that, in the light of Faith, Hope, and Charity, his Prudence, his Moderation, his Justice, his Endurance, were all transmuted into Humility. Humility became for him the touchstone of belief and of life. This is strikingly manifest in his notable address on *Culture and the Religious Sentiment*, and was no less so in his whole career. "Truly," he avers, "man, at his best, is altogether vanity in the sight of the all-wise and all-powerful Maker of heaven and earth. . . . Whosoever shall not receive the kingdom of God as a little child, he shall in nowise enter therein. The childlike spirit is the only spirit befitting any human being."

Whether he much read Marcus Aurelius, or much delighted in him, I have no means of knowing as a fact direct. But a strong strain of kindred with the Imperial Sage he certainly had. Something of this Stoic, this Roman strain, I do not doubt came down to him straightway by birthright. I see him now, in his simplicity, his utter unpretence, his homely but true urbanity, his friendliness most quiet but most real, his modest reserve, his reticent endurance; and I cannot fail to catch in him the suggestion of a resemblance, in all these traits, to the earliest English ancestor of whom his biographical sketch of himself takes account. He was the direct descendant, in the seventh generation, of an earlier Martin Kellogg, of Essex County, in England. The Stoic traits of this earliest Martin are well typified in his plain, unadorned, but solid and sufficing house of stone, which I believe is still standing; and they descended, I dare venture, to his latest

kinsman and bearer of his name, to be welcomed, reinforced, and enlarged in scope. That name itself is a good type of the character—Martin Kellogg, sounding simple, strong, solid, like the enduring rock.

In this unpretending, this simple-kindly fortitude, this whole character so retiring, so deep-hidden from display or public notice, our friend endured; and did his devoir; not seeking to create or even to frame circumstances, but accepting such as were given and came, dealing with them patiently, "with malice toward none, and with charity for all." Thus, with all his plainness, almost homespun, he was of proof in true breeding, of the best courtesy, a gentleman without flaw. So he achieved without violence, and accomplished lasting service.

May his name and quality live in our memory and our action always. May the life of the University that he loved so calmly, and yet so steadfastly, unfold more and more after the pattern of that Disciplined Humanity—Temperate, Just, Enduring, Wise—which governed all his being, so that he was in the sincerest fact *integer vitae scelerisque purus.*

UNIVERSITY RECORD.

VICTOR HENDERSON.

In commemoration of his half century of faithful toil for the advancement of knowledge, Eugene Woldemar Hilgard, Professor of Agriculture in the University of California, for the second time has been honored with the degree of Doctor of Philosophy by the University of Heidelberg. It was at Heidelberg, in 1853, that he took his doctor's degree in course, *summa cum laude*. As from his *alma mater*, so also from his colleagues of the University of California have come tributes of honor and affection. At a University meeting on October ninth there were exercises in honor of Professor Hilgard's doctoral jubilee and an address was presented by the Academic Council.

For twenty-eight years Professor Hilgard has directed the work of the College of Agriculture and of the agricultural experiment stations of the University of California. Himself the type of scholar in whom is united the old culture and the new, throughout his many years of service to the University he has toiled gladly for its development as in very truth a university. In the University's formative years his catholic mind, his sympathy with the highest university ideals, gave no support to the doctrine that the University of California ought to be merely a group of technical schools. His voice and thought were for the humanities no less than for applied science.

In the fifty years since he left Heidelberg, Professor Hilgard's activities have been varied in character and in

field. As State Geologist of Mississippi from 1855 to 1873, he pursued investigations of permanent significance as to the geological and physiographical meaning of the Mississippi river. It was during those years, too, that he laid deep the foundations of his researches in soil geology, since developed to such importance. His first academic chair was at the University of Mississippi, where he was Professor of Chemistry from 1873 to 1875. He was Professor of Geology and Natural History in the University of Michigan from 1873 to 1875. He has received the degree of LL.D. from Columbia, from the University of Michigan, and from the University of Mississippi, and the Liebig Medal from the Academy of Sciences of Münich for his distinguished achievements in the agricultural sciences—in particular his investigations of soils in connection with their native vegetation and of the influence of climate upon the formation of soils, and his successful experiments in the reclamation of alkali lands.

The address presented to Professor Hilgard by the Academic Council was as follows:

"*To Eugene Woldemar Hilgard, Ph.D., LL.D., Professor of Agriculture and Director of Agricultural Experiment Stations of the University of California,*

"GREETING:—Your colleagues of the Academic Council of the University of California desire to convey to you this token of earnest congratulation upon your completion of half a century of distinguished service in instruction and in original research in the natural sciences. During the fifty years which have elapsed since you received your doctorate with the highest honors from the University of Heidelberg, it has fallen to your lot to be a standard-bearer of science in three states and to plan courses of investigation and instruction which have exerted great influence in the educational and industrial development of these commonwealths. You brought to the University of California in its early days the great boon of your rare scholarship,

your quick apprehension of opportunities for the applied sciences, especially those underlying agriculture, your clear insight, and your tireless energy; and you have notably strengthened the institution in the appreciation and generous support of the public and at the same time have contributed inestimably to its internal development and progress. We honor you for your achievements, we admire you for your devotion to high educational ideals, we love you for the cordiality of your companionship, we earnestly pray that long life and continuous public usefulness may be vouchsafed to you.

"Berkeley, October seventh, nineteen hundred and three."

PROTECTION FOR CALIFORNIA AGRICULTURE.

The stamping-out of the recent epidemic of "fowl cholera" at Fallon in Marin county is a striking example of the directness with which funds granted to the University by the State for agricultural investigation are returned to the commonwealth.

Provision for a California Poultry Experiment Station at Petaluma in Sonoma county was made by the Legislature at its last session and five thousand dollars appropriated to be expended under Professor Hilgard's direction in a study of the factors causing losses to the poultry industry of the state. In accordance with the policy of first investigating the most alarming and destructive diseases, field experiments in controlling the disease popularly known as "fowl cholera" were undertaken. Annually this disease causes in California the loss of thousands of laying hens. Scarcely a year passes in which some poultrymen in the vicinity of Petaluma do not suffer literally ruinous losses. During the past summer a resident of Fallon lost 2700 fowls, and the losses from the outbreak in the same neighborhood, while not accurately determined, certainly amounted to as many more.

In October the cholera appeared in a flock of 3000 fowls near Fallon, killing from thirty to fifty a day. The

University was appealed to for aid. Sanitary measures suggested by Professor A. R. Ward, the Veterinarian of the Agricultural Experiment Station, and carried out by H. O. Woodworth, foreman of the California Poultry Experiment Station, resulted in stamping out the disease in about three weeks, with a loss of less than three hundred fowls from all causes. Similar measures have been adopted on other ranches with success. The California Poultry Experiment Station, during the first six months of its existence, has saved to the poultrymen of the Petaluma district, in a single outbreak of disease, a sum of money exceeding the $2,500 appropriated for the support of the Station for the whole year. The whole poultry industry is benefited, for the outbreak afforded a rare opportunity for studying the clinical manifestations of the disease as well as the pathological changes taking place. Pathologists in the United States have heretofore been singularly unsuccessful in obtaining proper material for the study of this disease. Whether or not the fowl cholera described by Pasteur exists in America is a mooted question upon which a bacteriological study of the California disease may throw some light.

The codling moth, long a menace to the apple industry of California, has been vigorously fought by the entomologists of the Agricultural Department throughout the past year. The Pajaro valley is the field. A preliminary study was begun in January, and an office and laboratory opened at Watsonville in April. Spraying operations were under way from April twentieth to September fifteenth, over some fifteen hundred acres of appletrees, ranging from five to twenty years in age and in varieties principally Newton Pippins, white and red Winter Pearmains, Yellow Bellefleurs, and Missouri Pippins. Monterey and Santa Cruz counties provided appropriations of $1,250 and $1,500 respectively and the Pajaro Valley Orchard Association $175. A notable diminution of loss has resulted in all the orchards sprayed. Facts of much importance in regard to

the life history of the insect were discovered and this information will be given to the public in early bulletins. Further work upon the timing of the spraying operations, in order to protect the foliage from injury by the spray materials, must be carried on before the investigations can be considered completed.

The farmers' institutes for the present year will number about a hundred, with an average attendance of two hundred and fifty. The special appropriation of $6000 per annum made by the last Legislature has made possible expansion of an agency invaluable in bringing the results of agricultural advance to the knowledge and use of the farming country.

Dr. PUTNAM IN ANTHROPOLOGY.

To support the anthropological researches which have been carried on through the University for some years, Mrs. Hearst has thus far expended more than $170,000. Her annual provision for anthropology exceeds $45,000. The University activities in this field some time ago were more definitely centered by the organization of a department of Anthropology, and now the department has been given a head by the appointment of Frederic W. Putnam, Professor of American Archaeology and Ethnology in Harvard University and Curator of the Peabody Museum, as Professor of Anthropology and Director of the Museum of Anthropology. Ever since his graduation from Harvard, in 1862, Professor Putnam has been engaged in researches and explorations in American archaeology and ethnology. In both zoölogy and anthropology his publications have been numerous. Besides his duties at Harvard, Professor Putnam for a number of years has been Curator of the Department of Anthropology of the American Museum of Natural History, in New York. From 1862 to 1889 he was Massachusetts Commissioner of Inland Fisheries. He was chief of the Department of Ethnology at the Chicago Exposition. He is a member of many American and

foreign learned societies, and he has been decorated by the French Government with the cross of the Legion of Honor.

AN ETHNOLOGICAL SURVEY OF CALIFORNIA.

The department of Anthropology has undertaken an exhaustive "Ethnological and Archaeological Survey" of California. During the past few years a large amount of material illustrative of Indian life and culture in past and present times has been added to the University's Museum of Anthropology. Systematic explorations are now being made of the later gravel deposits, of a number of caves, and of the ancient shell-heaps in order to ascertain when man first occupied this region. The languages of the existing Indians are being studied by the experts of the department, texts prepared, records made on the phonograph and with the Rousselot apparatus, and vocabulary and grammar investigated. The customs and mythology of the different tribes are being recorded and collections formed illustrative of their art. Investigations of the physical characterisicts of various groups of Indians, together with study of the skeletons unearthed, should throw light on the physical relations of the Indians of California with those of other regions. By correlating their physical characters, the particular cultures of the past and present Indians, and the various linguistic stocks or families still extant, it is hoped to solve the problem of the relationship of the numerous groups of Indians in California, and their relationship with peoples of other parts of North America and possibly with certain tribes of Asia.

Of particular interest is the study now going on of the Indian languages native to California, but rapidly disapearing. Some of these tongues are at present known by only five or six and others by only twenty or thirty individuals Hardly a year passes but that some special dialect or even language becomes extinct.

Because of the fertility of the field for anthropological research in California and because of the loss of opportunity

which delay implies, the University has felt that it is incumbent on it to offer opportunities for students to fit themselves for anthropological investigation. This year eight separate courses of instruction are offered. Four years of consecutive systematic training for anthropologists is now provided. There are sixty students in the present elementary course.

The University makes special appeal to people in all parts of California and adjacent regions for aid in this anthropological survey. Hundreds of Indian objects are found every year which if labelled as to date and place of finding and brought together at the University for comparative study would aid in the settlement of many important questions, such as the distribution of tribes or groups, the early migrations, the relationship of recent and present Indians and many other problems whose solution would help toward solving the greatest of anthropological problems—the origin and early history of man.

THE ABORIGINES OF CALIFORNIA.

The University of California's Publications in American Archaeology and Ethnology are about to be begun with a volume on "The Life and Culture of the Hupa," by Pliny Earle Goddard, including a collection of Hupa texts taken down by Mr. Goddard from the lips of the Indians. "The Languages of the Coast of California South of San Francisco," by Dr. A. L. Kroeber, will start the second volume.

Field researches among the Athabascan Indians of Northern California and Oregon have been continued by Mr. Goddard near Siletz, Oregon. Only a few individuals remain of each tribe visited. Information of a general anthropological character, vocabularies, and texts were obtained from four separate bands or families living on the Rogue and Coquille rivers. Mr. Goddard found interesting changes in the dialects and customs from California northward and through the western portion of Oregon. Near Blocksburg in Humboldt County, California, Mr. Goddard

recorded several texts and found much of interest in study of the influences exerted upon these people by the Wintun, their neighbors toward the East. The Indians on the South Fork of the Eel river will be studied during the summer of 1904. These aborigines suffered more from the early white settlers than was usual in California. The older Indians were killed in a most systematic fashion, a bounty being placed on the heads of males. The children were sold into slavery and now information is obtainable only from a few men who lived as servants of white men, or from women who became white men's wives. Mr. Goddard went to Washington in October to visit Dr. Washington Mathews and to work with him on the rich Navajo material, linguistic and mythological, which he is preparing for publication by the University.

The transcription, collation, and ordering of mythological and linguistic material, with relation mostly to the Yurok, the Yuki, and the Mohave, has engaged Dr. Kroeber's attention of late, together with executive work as secretary of the department.

EXPLORATIONS IN PERU AND EGYPT.

The first volume of the "Anthropological Memoirs" will be a report by Dr. Max Uhle, Hearst Lecturer in Peruvian Archaeology, on the results of his several years of explorations in Peru, conducted in behalf of the University, at Mrs. Hearst's instance. The first part of this volume will treat of the ruins of Moche, and the second of Huamachuco, Chincha, Ica, Pisco, and Huaitara. Dr. Uhle sailed for Peru on November seventh, to resume his field researches. While the report which he has finished comprises a thousand pages of text, a number of plans, illustrations, etc., and some sixty-five photographic plates, yet the rich material which he has already collected would require ten volumes more for its complete exposition. Dr. Uhle has carefully catalogued the materials of his collection and his field notes are of great fullness, so that work upon his material may be continued at any time.

Mrs. Zelia Nuttall is in Mexico, engaged in historical studies in connection with the Upsala map, money for this investigation having been provided by Mrs. Whitelaw Reid and Mrs. William H. Crocker.

In Egypt, Dr. George A. Reisner, Director of the Hearst Expedition from the University of California, is excavating about the Pyramids. This rich and interesting field has been divided by the Egyptian Government on equal terms between the University of California and the Italian and German governments.

The first published fruits of the University's explorations in Egypt are the Tebtunis Papyri: Part I, issued as the initial volume of the Publications in Graeco-Roman Archaeology. The volume has received high praise in the journals, as so admirable a monument of scholarship deserves. This first volume, of some seven hundred pages, represents the papyri from crocodile mummies belonging to the end of the second or the early part of the first century B.C., discovered at Umm-el-Baragat in the Fayum by Dr. Bernard P. Grenfell and Dr. Arthur S. Hunt while excavating for the University of California in the winter of 1899–1900 with funds given by Mrs. Hearst. Two other volumes are in preparation, one dealing with papyri belonging to the third and second centuries before Christ, and the remaining volume with papyri found in the ruins of ancient Tebtunis, belonging for the most part to the first three centuries of the Christian era.

THE MUSEUM OF GREEK AND ROMAN ANTIQUITIES.

The museum of classical archaeology is now taking form. After spending three years abroad purchasing Greek, Roman, Byzantine, Etruscan, and other classical antiquities for the University, at Mrs. Hearst's instance, Professor Alfred Emerson returned to America in September, 1902. Professor Emerson was reengaged in September, 1903, to instal and catalogue the rich and varied material thus gathered. The antiquities hitherto in storage in Naples,

Tuscany, Paris, and London, have now for the most part arrived in California.

An interesting collection of Greek and Etruscan earthenware from the ancient cemeteries of Saturnia and Statonia, in the watersheds of the Tuscan streams of Albegna and Fiora, is the most important single feature of the Italian section of the classical museum. The potteries of this Etruscan collection have been carefully restored by Signore Mancinelli. The exhibit affords accurate data for the evolution of Etruscan earthenware during several centuries. Other Etruscan antiquities have been grouped in supplementary fashion about the Mancinelli finds.

While the classical collections consist primarily of originals in vases, glassware, coins, bronzes, weapons, other metal work, and marbles, Professor Emerson has rounded out the cabinet with casts and copies of antiquities in foreign museums. Fifteen fac-simile copies of Graeco-Egyptian mummy portraits have been done in encaustic colors by Miss Eleanor Supplee in London after originals in the British Museum and the National Gallery, and a number of other similar copies of mummy portraits belonging to Mr. Thedor Graf of Vienna have been executed in Paris. Miss Supplee has painted also fifteen watercolors from antique Rhodian vases and other pottery in the British Museum.

CASTS AND SCULPTURES.

A prototype cast of one of the centaurs of the Capitoline Museum in Rome has been moulded for the University, permission having been obtained through the kind offices of Director Norton of the American School in Rome. This centaur will be used by Mr. Karl Bitter, Director of Decorative Sculpture for the Louisiana Purchase Exposition, as the model for one of the principal pieces for the adornment of the Art Building at the St. Louis Exposition, and then will be sent on to California. The original marble is one of the few signed sculptures that have survived from antiquity.

Among other casts especially executed for the University are three Amazons, the Throne of Aphrodite in the Ludovisi Collection, recently purchased by the Italian Government, an early Greek sculpture of extraordinary interest which has remained unmoulded until this year, and a bronze copy of the bronze spearman in the Italian National Museum. A series of casts are to be made, directly from the originals, of mythological and portrait busts in the Vatican, Capitoline, Baracco, Albini, National, and Naples Museums, and casts of still other Roman sculptures have been arranged for.

The most noteworthy statues in the Greek national collections will be represented in the University Museum by some twenty casts now being executed in the cast works of the National Museum at Athens. Other casts are being executed for the University in Berlin, Munich, Carlsruhe, Mayence, Cologne, and Paris. Several original marbles, also, are in the collection assembled by Professor Emerson.

The sculpture of today as well as that of antiquity will be represented at the University through Mrs. Hearst's generous interest. Mr. Robert Aitken, Professor of Sculpture in the Mark Hopkins Institute of Art, and sculptor of the naval monument in Union Square in San Francisco, of the decorative figures for the Spreckels Music Stand in Golden Gate Park, and of other fine work, has moulded six admirable torsels for the Hearst Memorial Mining Building. These heroic figures, which, executed in granite, will emerge from the wall and support the massive overhanging cornices, are expressive of superb vigor, indomitable power, in accord with the meaning of the building and the spirit of the pursuit for whose development it stands.

THE DRAMATIC FESTIVAL IN THE GREEK THEATRE.

The new open-air Greek Theatre was appropriately dedicated by a dramatic festival extending over several days. The festival began with the presentation of "The

Birds" of Aristophanes, in the original Greek, with choral and incidental music by Professor J. K. Paine of Harvard, on September twenty-fourth. The great auditorium was massed with people to its topmost tier, and from the neighboring hillsides the overflow looked down between the trees. The eight thousand or more spectators found all places about equally good for seeing and for hearing. Mr. Ben Weed, '97, described his discovery of the site, and the "Vehmgericht" of the class of '94; Mr. John Galen Howard, Professor of Architecture and Supervising Architect of the University, told of the meaning and possibilities of the structure which he had reared; President Wheeler described the development under Greek skies of the Dionysiac theatre, and Mr. William Randolph Hearst told of how he came to build the Greek Theatre, and of his belief in the future of the University of California as of and for the people.

Then the birds, gorgeous of plumage and provocative of mirth, came fluttering, pecking, hopping, and chirping down the *paradoi* and into the orchestra. It was in the orchestra, in accordance with the beliefs of many archaeologists, and not on the stage that the play was acted. For an hour the student actors, even though speaking a dead language, held the closest attention of the audience. The production was equally commended by its scholarly correctness, its artistic value, and the perfection of the arrangements of every detail of the day.

A noteworthy production of "Twelfth Night," on September twenty-sixth, was the second event of the dramatic festival. Mr. Ben Greet's "Everyman" company from London gave the comedy in the Elizabethan manner, without break between scenes or acts and with no cutting or rearrangement of the original text. The festival closed on October third with the presentation of Racine's "Phèdre," in French, by students of the University, with Miss Grace Llewellyn Jones as Phèdre. For this play the stage pictures were even more beautiful than for the two earlier productions. The plays of the cycle were interesting

evidence of the possibilities of an out-of-door representation, and showed how easily the imagination may dispense with the aid of scenery, curtain, or artificial light.

The successful outcome of the dramatic festival is due primarily to the untiring toil of Professor Leon J. Richardson as general chairman for the whole cycle of plays and to committees consisting of Professor Richardson, Dr. Prescott, and Professor Allen for "The Birds;" Mr. Spinello, Mr. Faucheux, Mr. Howard, and Dr. Bransby for "Phèdre;" Professor Armes, Professor Stephens, and Professor Gayley for "Twelfth Night;" and to Mr. Hutchinson, Professor Armes, and Mr. Landfield, in charge of tickets and ushering for the three plays.

UNIVERSITY MEETING.

The students took over the Greek Theatre as their own at the University Meeting of September twenty-fifth. Most Rev. George Montgomery, Archbishop Coadjutor of San Francisco, was the principal speaker of the day. Mr. Ben Greet talked of the place of the drama in human culture, and Ezra W. Decoto, '00, and Richard Walton Tully, '01, spoke on behalf of the students and alumni of the University. Two night rallies have shown other possibilities of the Greek Theatre. On each occasion there were not less than seven thousand people assembled. The theatre was rarely beautiful in the glow of the great bonfire in the orchestra, and with the students in grotesque costume dancing the serpentine across the stage and down the *paradoi*.

The University Meetings, save on special occasions, will continue to be held in the Harmon Gymnasium. On September eleventh the speakers were Professor Edward Bull Clapp, who told of recent experiences in the Balkans and in Greece, and the Rev. Ernest E. Baker, Pastor of the First Presbyterian Church of Oakland. At the annual University Meeting on the eve of the California-Stanford tie football game the speakers were Regent John A. Britton,

Professor George C. Edwards, Professor Joseph Marshall Flint, and Professor Albin Putzker.

An interesting recent development has been the formation of technical societies by the students of each of the departments of applied science. These societies have held frequent meetings at which valuable scientific addresses have been delivered by engineers, business men, or members of the faculty, and they have united in the publication of the "California Journal of Technology," a student periodical which already has a circulation exceeding 1700 copies and which has attained a high standard of merit under the editorship of its founder, Robert Sibley, '03, now Professor of Mechanical and Electrical Engineering in the University of Montana, and the present editor, Fred L. Johnston, '04. Of the lectures delivered before the engineering students this year, particularly notable have been those in the field of mining engineering, especially the series of Mining Law given by Judge Curtis H. Lindley of the class of 1874.

To the student organizations for the promotion of intellectual ends have recently been added a Cercle Français, a Circulo Iberico, and a Deutscher Verein, while the College of Commerce Club, the Harvey Biological Club, and other similar student bodies continue to hold many valuable meetings.

MEMORIAL EXERCISES FOR PRESIDENT KELLOGG.

Memorial exercises for President Martin Kellogg were held in Hearst Hall on September 19th. President Kellogg's colleagues of the Academic Senate and his old associates of the Berkeley Club went in procession together to the assembly room. Professor George H. Howison delivered the Commemorative Address, a panegyric as noble in oratory as eminently just. There were addresses as well by President Wheeler, by Professor W. A. Merrill, and by Professor W. B. Rising and one prepared by Hon. Columbus Bartlett, long a Regent of the University and intimately associated with President Kellogg throughout his adminis-

tration. Because of Mr. Bartlett's absence on account of illness the address was read by his son, Mr. L. de F. Bartlett of the class of '93.*

In the academic procession at the memorial services was Mr. Charles Turner Kelly Tracy, '64, then with the exception of the Rev. Albert F. Lyle,'64, the earliest living graduate of the University. It was his first visit to the University for some seventeen years. The sad news came only a few days later of Mr. Tracy's death in San Francisco on September twenty-fourth.

ALUMNI GATHERINGS.

The alumni of the University held their annual banquet in San Francisco on November 16th, with the 'Varsity football men as guests of honor. The custom of class reunions and dinners on the eve of the California-Stanford football game is rapidly strengthening. Such dinners were held this year by the classes of 1897, 1899, 1900, 1901, 1902, and 1903. The University of California Club of San Francisco, which invites all alumni or former members of the University to gather informally for luncheon on the first Saturday of each month at 104 Grant avenue, San Francisco, this year had charge of a large section of seats for the football contest, so the alumni were enabled to obtain good seats together for the "big game."

STATISTICS OF ALUMNI AND STUDENTS.

The alumni of the colleges at Berkeley now number 2892; there are 659 graduates of the Medical department, 684 of the Hastings College of the Law, 610 of the Dental Department, and 565 of the department of Pharmacy. So 5410 degrees have been conferred, in course, by the University.

The total enrolment of the University in October, 1903, was 2822. Of these, 2273 were undergraduates at Berkeley, 207 graduate students, 118 medical students, 206 students

*The addresses of the occasion will be found on page 202 of this number of the CHRONICLE.

in the Mark Hopkins Institute of Art, 80 in law, 112 in dentistry, 84 in pharmacy, and 32 in the short courses in Agriculture and Dairying. Adding 868 students in the last Summer Session and deducting 290 for double registration, the total registration is obtained of 3690 students. The teaching staff, including readers and assistants, but omitting assistant clinicians, etc., in October numbered 342.

FACULTY CHANGES.

Thomas Walker Page, who resigned in 1902 to become Professor of Political Science and Director of University Extension in the University of Texas, will return to Berkeley in January, 1904, as Associate Professor of Mediaeval History. The work in American history left unprovided for by the resignation of Dr. Kendric C. Babcock, who on November sixth was inaugurated as President of the University of Arizona, has been taken up by Dr. Eugene I. McCormac, Ph.D., Yale, '01.

That instruction in the history and theory of Socialism might be offered by the University, Miss Jessica Peixotto, Ph.B., '94, Ph.D., '00, has been appointed Lecturer in Sociology in the department of Economics.

Miss Annie M. Alexander's generosity enabled the University to send an expedition during the summer to collect marine triassic reptilian fossils in Shasta county. The results proved most gratifying, the material gathered being richer than that collected by any previous palaeontological expedition from the University.

The manuscript of the last story written by Frank Norris, '94—"Two Hearts that Beat as One," the delightful tale which its author read at the University Meeting on September 12, 1902, only a month before his untimely death, has been given to the University by Charles G. Norris, '03, at Librarian Rowell's request, and will be treasured in the Library.

IN MEMORIAM—PROFESSOR SYLE.

Louis Du Pont Syle, M.A., formerly Associate Professor of English Literature in the University of California, long a stimulating teacher and strong friend of the best dramatic interests of the University, died in Oakland on November 14, mourned by the great number of students who had sat in his class room and known him in everyday life. Professor Syle founded the admirable institution of the Charter Day play—a yearly production in the most dignified and worthy form of some fine old English comedy, adapted for the modern stage by Professor Syle himself, as in the case of "Love for Love," or of some play newly translated, like "Mademoiselle de la Seiglière," or specially written for the occasion, like Professor Syle's own "Chaplain's Revenge." He began his college life at Trinity, but he graduated at Yale and from Yale received his degree of Master of Arts. A volume of dramatic criticism came from his pen, he edited English classics with much discrimination and fine appreciation, and he wrote much for periodical publication. President Wheeler's memorial words for Professor Syle, published the day after his death, were as follows:

"The untimely end of Professor Syle's career as scholar and teacher must bring pain to everyone who had occasion to know his brilliant gifts and to experience the helpfulness of his instruction. He possessed undoubtedly a rare sense for the fineness and dignity of English dramatic literature and had shown unusual tact and good taste in giving English plays a worthy setting upon the college stage. Anyone who saw the Charter Day play of 1900 could not fail to know that a master hand was in control. It would I believe have given highest satisfaction to his talents and to his ambition could he have developed here a department of dramatic criticism and art, using the actual representation of plays as the concrete and practical form of instruction, through which the theoretical and ideal might be given body and form. His natural talents as a teacher

were greatly enhanced in value by a natural interest which he took in the interests and the points of view of those he taught. There are hosts of students from many classes who bear thankfulness toward him in their hearts not only for what he taught them, but for the interest he showed in their troubles and perplexities as well as in their joys and successes. In the face of these sunnier memories of his work and desire we forget the shadows that ill-health brought upon his mood and life; for the sunshine is there forever, and the shadows are but for a day."

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A PLEA FOR MAKING THE HIGHER EDUCATION ACCESSIBLE TO THE POOR.*

JAMES B. ANGELL.

It is with pleasure that on this festal day I bring the salutations of the University of Michigan to the University of California. I bear the greetings of the elder institution to the younger. I come with the message of congratulation from one of the most eastern state universities to the most western. It is with a justifiable maternal pride that she sees eight of her sons honored by positions in your faculties, and through them shares in the glory of your achievements.

While we in the East have beheld with wonder and admiration the phenomenal development of your State, we have rejoiced to see that the growth of the University has even outstripped that of the State. It is to the great credit of this young Commonwealth that while like all new States, it has had to bear the heavy burden of establishing all the institutions, charitable, penal, reformatory, and educational, which our humane civilization demands, it has ever kept in the forefront the needs of this University and has ministered to its wants with so generous a hand. When older and richer States were lagging in the support of their universities, California set the stimulating example of establishing the one-cent tax, and afterward raised this to

*Charter Day address delivered by President James B. Angell of the University of Michigan at the Harmon Gymnasium, March 23, 1904.

the two-cent tax for the maintenance of this institution. We in the East gratefully acknowledge the help which this wise act afforded us in securing aid in the same manner, even if on a less generous scale. It was refreshing to us to see your legislature rise to the Aristotelian view of the function of the state, to seek every high and noble end which it can secure better than the citizen. This idea of cherishing the higher education and bringing it within the reach of every boy and girl in the commonwealth has been incorporated into the very fibre and life of the State.

When we consider that the total cost of this University to the treasury of the State from its foundation to this day has been a little more than three million dollars, which is less than the cost of a first-class battleship, when we remember that it has sent out over five thousand graduates, and that as many more have spent some time under its roof, and that these ten thousand men and women are filling useful positions in all honorable callings and enriching and strengthening the life of the State in innumerable ways, when we remind ourselves that the names and works of its professors are honored wherever in the world letters and arts and sciences and philosophy are honored, when we recall the fact that by general consent of scholars the University ranks with the first in the land, and that it has made the name of California known and respected not only throughout this nation, but beyond the seas, we may well render our grateful tribute of praise to the broad-minded and far-sighted men who have so wisely laid the foundations and begun to rear the walls of this institution.

In all this vast audience, nay, within the boundaries of this great commonwealth, can any one be found to rise up and declare that the builders of this University made a mistake in adopting so generous and comprehensive a policy for securing the best type of higher education for the sons and daughters of California? Still in this country, where unlicensed freedom of speech sometimes leads persons of eccentric temperament and of self-satisfied pride of opinion

to rejoice in defending paradoxes and in questioning the validity of the fundamental principles of republican government, it may not be altogether superfluous or unprofitable for us on occasions like this to consider the proposition that I propose to discuss. That proposition is this, that it is of vital importance in a republic like ours that the higher education, as well as common school education, be accessible to the poor as well as to the rich.

1. It is in itself fitting, and, in a certain sense, it is due to children as human beings, that the poorest child should have proper facilities for obtaining by reasonable effort the best development of his talent and character. I think I may appeal to common sense and the general feeling of civilized men in recognition of this truth. One of the highest ends of society is to help men make the most of themselves. True, as I shall soon show, this is partly because it is for the interest of all, of society at large. But beyond that we instinctively recognize it as a duty to do what we can, both individually and through the organized action of society, to open to every child—and for the child's own sake—a fair chance for the best start in life for which his talent fits him. I know that we often justify our providing a free common school education simply by showing the necessity of such an education as a preparation for citizenship. But I believe that down in our hearts there is a profound satisfaction, and often an impelling motive for our action, in the conviction that we are doing simply what is just, what is due to every child as a human being, in giving him an opportunity to kindle into a flame any divine spark of intelligence within him. Is it too much to say that the infant born into a civilized and Christian society has a right to claim something more than a bare possibility, has a right to claim a tolerable probability, of such moral and intellectual surroundings as shall make education and character accessible to him, if he has a fair amount of talent, self-denial, and energy? For the moment I am not considering whether his claim should be met by legislation

or by voluntary action. But that it should be met by society in some way I think will be generally conceded.

What more touching spectacle is there than that of an ingenuous and high-spirited youth, consumed with an insatiable thirst for knowledge, endowed with faculties that might make him the peer of the greatest, yet chained by the heavy hand of poverty through all his best years to the foot of the ladder on which his aspiring soul would, if unfettered, so easily and so joyously have mounted to the stars? His indomitable energy may enable him at last, after years of heavy struggle, to attain a lofty height. But would not it be a blessed act, would it not be a just, and wise, and righteous act, to relieve him of so much of the struggle as is not needful for the discipline of his soul, and to secure to him as well as to society years of his most fruitful work? As the magnet draws the particles of steel from the dust and lifts them into view, so the common school system, stretching out its sensitive and generous hands to every child in this commonwealth, lifts the exceptionally gifted into notice, makes him and his friends cognizant of his power and his promise, kindles in him the flame of a noble ambition for learning, and compels us to recognize the duty of society to smooth the way from the cradle of talent in the humblest log hut to the halls of the highest learning. To stimulate to the utmost the ambition of these pupils by your schools, to set their minds on fire with this unquenchable desire for ampler culture, and yet to make that culture practically inaccessible, to slam the door of the college in the face of every one who is poor, were illogical and cruel and unworthy of your boasted civilization.

2. But we need to make the higher education accessible to the poor not merely on account of the poor and gifted scholars themselves, but also because this is best for society. We need all the intelligence, all the trained minds we can have. There is never a surplus of wisdom and true learning. There is often a surplus of pedantry. There is often an excess of false pride on the part of those who have not

talent enough to shine in purely intellectual pursuits, and who foolishly hold themselves above the only pursuits for which, with all their advantages of education, their moderate mental endowments fit them. But these are merely incidental evils belonging to any system of higher education. Of strong, well-balanced, well-furnished minds we cannot have too many. They are the true riches of a nation. Without them the mines of El Dorado cannot make a people rich or strong. With them the dwellers on on a desert may become prosperous and invincible.

Now, God bestows talent with impartial hand equally on the rich and the poor. He sows the seeds of genius in what might seem the unlikeliest spots. He often places the choicest jewels in the humblest settings. His rarest gifts of mind are dropped in the obscurest homes. As the son of Sirach has told us, "Wisdom lifteth up the head of him that is of low degree, and maketh him to sit among great men." It was on an Aryshire peasant that Heaven bestowed the power of the sweetest song that ever rose on the Scottish hills. It was to the blacksmith's son, the book-binder's apprentice, Faraday, that the electric currents, in their rapid and unseen flight, paused to reveal their secrets. It was given to a colliery fireman to harness steam to our chariots and bear us as on the wings of the wind across the continent, and so to revolutionize the commercial methods of the world. It was on a man whose origin is so obscure that his parentage can scarcely be traced, that God laid the responsibility and conferred the power of leading us out of the disgrace of slavery and the blackness and darkness of civil war into the sweet light of true freedom and welcome peace.

No nation is rich enough to spurn the help which God gives in such rare minds as these, though their childhood is housed in hovels. No nation should be so short-sighted as to pile up obstacles in their path, or even to leave any which can be removed. As the husbandman at the foot of the Sierras, at great cost and with infinite pains, makes a

secure channel to bring the fertilizing mountain stream to his fields, guiding to it every rivulet which can swell its volume, and thus makes the parched desert blossom like the rose and wave with golden harvests, so may a nation well do much to smooth the way for its gifted children to enlarge their faculties, to enrich their minds, and thus pour far and wide the beneficent streams of their influence, and give us richer harvests than those of corn, and wine, and oil.

3. Again, we need to put the higher education within the reach of the poor, because we cannot afford to endow the rich alone with the tremendous power of trained and cultivated minds. To do this might form an aristocracy of formidable strength. So long as the poor have anything like an equal chance with the rich of developing their intellectual power, we have little to fear from an aristocracy of wealth; but let wealth alone have the highest intellectual training, let the poor as a class be shut out from the schools of generous culture, and we must either consign the control of all intellectual and political life to the hands of the rich, or else have a constant scene of turbulence between the ignorant many and the enlightened few. Bitter class hatred would be inevitable. There can be no stable equilibrium, no permanent prosperity for such a society.

Learning, too, would soon give place to pedantry, displayed like the ribbons and orders of a petty German court. The scholarship which is a mere concomitant and badge of wealth would become vain and meretricious and shallow.

Yet there are men who, professing to speak in the interests of the poor, of true learning, and of sound philosophy, inveigh against a system which opens the doors of all learning to the humblest as well as to the richest child, and insist that we shall make every one pay to the full the cost of his high school and university education. Do they not see that this would be a matter of little consequence to the rich, who could easily secure their training at any expense, but that it would consign the poor children, how-

ever endowed with talent, to the humblest acquisitions of learning or to the most trying struggle to attain to true culture? It is in the interest of the poor, it is in the interest of true and enlightened democracy, that we insist that the highest education shall be accessible to all classes.

The most democratic atmosphere in the world is that of the college. There all meet on absolutely equal terms. Nowhere else do the accidents of birth or condition count for so little. The son of the millionaire has no advantage over the son of the washerwoman or over the liberated slave, who has hardly clothes enough to cover his nakedness. Nowhere in the world is a man so truly weighed and estimated by his brains and his character. God forbid that the day should ever come when the spirit of snobbishness or aristocracy or pride of wealth should rule in our college halls.

Talk about oppressing the poor by sustaining the University! It is the sons and daughters of the men who are poor or of very moderate means who form the great majority of the students here and in almost every institution of higher learning. I could move your hearts to pity or to admiration if I could call one after another of the many whom I see before me on this occasion to come up here and tell what toils they have performed for long and weary years, what hardships and privations they and their parents have endured to gather up the few hundred dollars needed to maintain them with the closest and most pinching economy during their few years of residence here. I hope that those who practice high thinking and plain living will always be in the majority on these grounds. Sad, indeed, will it be for the University and sad for the State when such as they cannot by manly effort secure to themselves the best help which the resources of this school can offer to them.

Anything more hateful, more repugnant to our natural instincts, more calamitous at once to learning and to the people, more unrepublican, more undemocratic, more un-

christian than a system which should confine the priceless boon of higher education to the rich I cannot conceive.

Have an aristocracy of birth if you will, or of riches, if you wish, but give our plain boys from the log cabin a chance to develop their minds with the best learning, and we will fear nothing from your aristocracy. It will speedily become either ridiculous or harmless, or, better still, will be stimulated to intellectual activity by learning that in the fierce competitions of life something besides blue blood or inherited wealth is needed to compete with the brains and character from the cabins.

4. Another cogent reason for opening the privileges of higher education to all classes in this country is found in our distribution of political power throughout the community. The largest part of the public action which most concerns us is taken or determined by local organizations. The successful working of our republican system depends upon the distribution through the smaller towns and villages and through the rural districts of men of intelligence. If all the cultivated minds were concentrated in one capital or in a few great cities, we could not perpetuate our form of government. Any strong tendency toward such a result must seriously interfere with the purity and efficiency of our institutions.

We need, therefore, to reach with our best training men drawn from all classes, from all pursuits in life, and men who are to return to all honorable and worthy vocations, not alone in the great cities, but in all parts of the land. It is by this diffusion of educated men, and by the diffusion through them of the direct and indirect advantages of education among the inhabitants of every town and hamlet, that a great school of learning does its highest work and justifies its claim to support by the whole people. It disseminates over the whole State men who are trained to be intelligent leaders of thought, to enlighten their neighbors on important affairs, to expose the fallacies of charlatans in politics, science, and religion, to keep alive an interest

in education, to discharge all the duties of citizenship, and, if need be, of public office. It thus keeps the whole body politic vigorous and healthy with the life-giving currents which it sends to the extremities, as well as with the strength which it lends to the heart. It is not true that it blesses only the men who receive its degrees. Through them it blesses all around them. Its graduates are often the medium of greater blessings to others than to themselves. Mark the venerable physician, who, trained to the highest professional skill in its halls, has ministered with unselfish devotion for a generation to the sick and suffering. Has he or have they been most blessed by his education? Take the lawyer, whose advice for years, the widow, the orphan, the poor have instinctively sought, whose opposition the criminal has dreaded, whose counsel and guidance the town, the county, the public have always desired in every emergency; has his power been only or chiefly a good fortune to himself? In a large sense it is true that the advantages of the higher education cannot be selfishly monopolized by the recipient of it. It is not truly enjoyed, it can hardly be used in any honorable way without conferring benefits on others. You might as well talk of the sun monopolizing and enjoying alone the light which is generated in it as to talk of a scholar monopolizing the advantages of his education. The moment the sun shines, the wide universe around is bathed in its life-giving beams. Intellectual activity is necessarily luminous, outgoing, diffusive, reproductive. The graduates who are going out from this University are not taking with them hidden treasures to enjoy in secret as the miser gloats in the solitude of his garret over his gold, but rather precious seed which they will sow in every town and hamlet in this broad State, while the thousands about them will share with them the harvest of their sowing.

I need hardly say that any system which should confine the best education to the rich would greatly curtail this diffusion of the blessings of education, and would, doubt-

less, tend to concentrate the educated men almost entirely in the great cities. Is it too much to say that it would tend to political centralization and to a loss of the inestimable advantages which flow from the wise and vigorous local administration of public affairs, and from the comparative homogeneousness in our society caused by the distribution of educated men throughout our communities?

5. The general opinion of mankind in all Christian lands has favored some plan of bringing liberal education within the reach of the men of humble means. It has been reserved for these latter days to make the discovery that there is danger in thus opening the fountains of learning to the poor as well as rich. For the most part the direction of education has been in the hands of the church. Now whatever criticism may be made upon the church through these eighteen centuries, she has with impartial hand held wide open to men of high and low degree alike the gates to generous learning. She has encouraged and persuaded the rich to endow her schools and colleges and universities, so that the instruction might be almost, if not entirely, free. She has taught them to found scholarships and fellowships, which would enable the poorest boy to spend the best years of his youth and manhood in the still air of delightful study.

The rulers of every nation of Europe have cherished their great schools of learning as the choicest jewels in their crowns. They have lavished wealth on them and endowed them so richly that at most of them the cost of instruction is little more than nominal, and peasants and princes are found on the same bench listening to the lectures of the great scholars in every science. What glorious monuments of wise generosity these universities have been! Royal houses have risen and disappeared, kingdoms have come and gone, the map of Europe has been made and re-made again and again, but the great mediaeval schools, to whose halls centuries ago thousands of eager scholars trooped from all parts of Europe, still stand fresh in eternal youth, welcoming

with princely hospitality poor and rich to their halls, pouring out their streams of blessing from generation to generation and from age to age, with a flow as copious and as unceasing as the Danube or the Rhine. If we may judge by the past, what work of man is more enduring or more beneficent than a strong university?

In this country, too, where the early settlers began to lay the foundation of our most venerable university before they had made comfortable homes for themselves, we find public and private generosity vieing in supplying the wants of the infant college. While the colonial authorities voted appropriations, we see self-denying men and women stripping their scanty libraries of books and their ill-supplied tables of crockery to equip the struggling institution, whither the sons of all might repair to be trained for every worthy work in state and church. Contributions were solicited for the maintenance of poor students, so that, to borrow the language of an early President to the United Commissioners of the Colonies, "the commonwealth may be furnished with knowing and understanding men and the church with an able ministry." From that time to this it has been the aim of the guardians of that ancient university, and of every college which has been established in the land, to furnish education at such a rate that boys of modest means could procure it.

So, whether enriched by private or public endowments, every college has aimed to furnish education at such a rate that boys of modest means could procure it. While we rejoice at the existence and prosperity of universities and colleges established and maintained by the private gifts of generous benefactors, to my mind there is one peculiar charm in the state university, namely, that every citizen of the state is a stockholder in it and a contributor to its usefulness. This University is not the possession of the Faculties or even of the Regents, but of you, the people of the State. Every man, every woman in this broad commonwealth has a proprietary interest in its welfare and its usefulness, and

as proprietors they should rejoice in the successes which are made evident on festal days like this. Its strength is found in the devotion of your hearts. Its hopes are rooted in the faith that you, your children, your children's children, will never desert it. Can there be in a republican state any more solid and enduring foundation for a university like this than the devotion of an intelligent people to an institution that pours out its blessings with impartial and loving hand upon all who are competent to receive them and profit by them? Is not this one of the supremest triumphs of American democracy? Is not this a kind of socialism which we can all commend?

Regal indeed are the gifts of nature to California. A soil which bountifully rewards the toil of the husbandman and fills to overflowing his granaries; a climate so balmy that you have a veritable paradise of fruits and flowers, where the breezes fall soft as the gales of Eden on the peach, the strawberry, and the grape, and coax the roses into riotous and perpetual bloom; mines richer in wealth than those of Golconda, forests still magnificent in primeval grandeur and rivaling the mines in value, and the broad Pacific at your feet waiting to bear you and your products not only to our new insular domains, but to the illimitable markets of the Orient; the sky, the earth, the seas all combine to pour their richest contributions into the lap of this favored commonwealth.

Yet, with all these riches, poor indeed had been the State, had not a brave, and manly, and intelligent people chosen it as their home. For earth, and sky, and water, and mine had all been here for ages. But savages could not of these make a prosperous commonwealth. It is intelligence and character alone which can make a great and thriving state. And so the grave question which pressed itself on the fathers still forces itself on you: How shall you train your children to make the most of these conspicuous advantages, to build a state which shall be truly great, to contribute their full part to the honor and glory

of the nation, to lead happy and useful lives, to be a blessing to mankind?

But whatever be the method of endowment of our great schools, may the day never come when they shall be inaccessible to the humblest youth in whom God has lodged the divine spark of genius, or that more common but sometimes not less serviceable gift of useful talent. Let not a misapplication of the *laissez faire* doctrine in political economy, which has its proper place, lead us to the fatal mistake of building up a pedantic aristocracy. Good learning is always catholic and generous. It welcomes the humblest votary of science, and bids him kindle his lamp freely at the common shrine. It frowns on caste and bigotry. It spurns the artificial distinctions of conventional society. It greets all comers whose intellectual gifts entitle them to admission to the goodly fellowship of cultivated minds. It is essentially democratic in the best sense of that term. In justice, then, to the true spirit of learning, to the best interests of society, to the historic life of this State, hold wide open the gates of this University to all your sons and daughters, rich or poor, whom God by gifts of intellect and by kindly providences has called to seek for a liberal education.

THE BENEFACTORS OF THE UNIVERSITY OF CALIFORNIA.*

BENJ. IDE WHEELER.

While the University of California was chartered by the State in 1868, its organized life began in 1860, when the College of California received its first students. The University at the very moment of its formal recognition by the State received from private sources its lands in Berkeley, a faculty already partly formed, and a well-established tradition of high scholarly ideals. For the University of California the United States provided endowment in the form of a grant of 195,000 acres of public lands, and from the same source the University was to receive annually $25,000 from the Morrill College Aid Fund, $15,000 a year for the support of the Agricultural Experiment Stations, and provision for the maintenance of the department of Military Science. From the State came buildings and a pledge of mete support. Thus clearly and distinctively at the very beginning was laid the tradition that the University was to have the constant aid of the commonwealth of California, of the national government, and of private citizens.

In the early years the funds which were given by the State came as special appropriations. Then, that the University might be firmly rooted in the very prosperity of

*Address delivered at the Charter Day exercises, March 23, 1904.

the State, the principle was established of an *ad valorem* tax, first of one cent and later of two cents on each $100 of assessed valuation. Specifically for its support, of late years the Legislature has placed the University upon the general appropriation list as well, and still, as in earlier years, it has continued to make specific appropriations for specific needs. Thus the last Legislature appropriated $250,000 for the erection of California Hall, $1,800 for Fertilizer Control, $6,000 a year for Farmers' Institutes, $3,000 a year for Viticulture, $2,500 a year for Poultry Experimentation, and $3,000 a year for the improvement of the Affiliated College grounds, while the amount placed in the General Appropriation Act was $100,000 per annum. The two-cent tax for the current year will yield $303,795.42.

Thus far the provision for buildings, whether by the State or by private generosity, has been most inadequate. The total value of all the structures on the campus already in use is only half again as much as that of one single hall —the Hearst Memorial Mining Building—now in process of construction at a cost of half a million. The first buildings, North Hall and South Hall, were erected by the State, the men's gymnasium, costing $12,000, was given by the generosity of Mr. A. K. P. Harmon, the Library was built share and share alike by Henry Douglass Bacon and the State, each providing $25,000, and Mrs. Emilia F. Ashburner presenting the clock and bell. To build a home for the Y. M. C. A. and the Y. W. C. A. Mrs. Ann Jane Stiles gave $30,000. Mrs. Hearst built Hearst Hall as a center for the life of the women students and as a place for their gymnasium work. The cost was about $50,000. The building has developed a usefulness in the life of the University which has surpassed even the most sanguine expectations. To provide for urgent needs, Mrs. Hearst erected at a cost of $19,204.17 a temporary laboratory for the Mining Department and a temporary shelter for the museum collections.

Mr. Rudolph Spreckels, in order to make possible the beginning of the work in California of Dr. Jacques Loeb,

erected the Rudolph Spreckels Physiological Laboratory at a cost of $25,000, Dr. M. Herzstein at the same time providing $8,000 for equipment, a friend of the University pledging $5,000 a year for three years for the salary of the chair, and Mrs. William H. Crocker giving $2,500 for the purchase of the more important sets of scientific journals needed in physiological research. Mrs. Jane Krom Sather has provided $10,000 for the erection of a stone bridge and gateway at the Telegraph Avenue entrance to the campus. The Greek Theatre, as noble in its outlines as in service to University needs unique, bears witness to the generosity of Mr. William R. Hearst, as does the Hearst Memorial Mining Building to his mother's constant thought for the University. The Greek Theatre cost $47,000; the Mining Building will cost $500,000. Latest of the great gifts to the University, and in answer to an all-compelling need, comes the provision of Mr. Charles F. Doe of something more than $700,000 for the erection of an adequate library—a building which shall be permanent, safe, and fitly expressive of its splendid purpose.

The alumni have pledged themselves to the erection of an Alumni Hall which shall serve as the center of the common social life of the University. Such recurrent gifts from individual alumni as those of Mr. James K. Moffitt, of the class of '86 of $300 annually for new books in philosophy and literature, such a gift as that of Miss Adrienne Cerf, of the class of 1901, who returned with interest, as a scholarship fund, all the money she herself had received from the University as the holder for two years of a scholarship, such gifts as the constant stream of books, scientific collections, photographs, curios, and objects of artistic or scientific interest which come constantly from many parts of the world, such contributions for the development of aforetime interests as the gifts of Colonel George W. Bauer for the development of the library of the department of Chemistry, for rivalry in marksmanship, and for chemical research,—all these remembrances promise much for the

future, when the alumni of the University, now for the most part in early life, shall have come to full estate and to better opportunity to repay to their alma mater some share of the debt which is theirs.

Benefactions have been many for the professional schools of the University. On thirteen acres of land given to the University by the late Adolph Sutro, with an outlook across Golden Gate Park and out over the hills and the ocean, the State erected, at a cost of a quarter of a million, the schools for Medicine, Dentistry, Pharmacy, and Law. The Mark Hopkins Institute of Art, given by Mr. Edward F. Searles, affords opportunity for training which promises a new day for the arts in California. Mr. Searles' gifts to the University for the Institute of Art have aggregated in value $661,500. Judge Serranno Clinton Hastings gave $100,000 for the endowment of the Hastings College of the Law, and Dr. H. H. Toland provided a home for the first years of medical instruction by the University, his gift approximating in value $25,000. To the guardianship of the Regents Mr. J. Clute Wilmerding entrusted $400,000 for the Wilmerding Trades School, an endowment since grown through careful management to a principal of $434,000. The citizens of San Francisco provided a site for the school at an expense of $20,000.

The Lick Observatory, to-day the foremost center in the world of practical advance in astronomy, was created by a bequest of $700,000 by James Lick. The great achievements of the Lick Astronomical Department have been aided by the generosity of many friends. The United States gave 2030 acres of land for the observatory site on Mount Hamilton, and the initial equipment has been very much reinforced by Mr. Edward Crossley's gift of the great Crossley Reflector, the value of which is more than $11,000, —the largest instrument of its class—and by Mr. D. O. Mills' gift of the Mills Spectrograph, which has cost in all $2,000, and Mr. Charles F. Crocker, Mr. William H. Crocker, and Mrs. Hearst have made possible eclipse expe-

ditions richly fruitful in results, and Mr. D. O. Mills has provided $26,400 for the Lick Expedition to the Southern Hemisphere, which promises to advance materially our knowledge of the true constitution of the solar system. Mrs. Hearst has been a continually helpful friend to the Lick Observatory, and it has been put under much obligation to the National Academy of Sciences, the Carnegie Institution, which is to allow the observatory from its funds $4,000 annually for three years, Mr. W. W. Law, who gave $1,300 for the publication of an observatory atlas, Miss C. W. Bruce, who gave $1000, and other staunch friends.

The principal endowments given for the colleges at Berkeley have been the Edward Tompkins foundation for the Agassiz chair of Oriental Languages, of a value of about $50,000; the D. O. Mills Chair of Philosophy, supported by the income from an endowment of $150,000; the endowment given by Miss Cora Jane Flood for the College of Commerce, amounting in value to more than $300,000; Mrs. Sather's gifts of $10,000 for the Sather Law Library, of $10,000 for the Sather Library, and of $75,000 for a chair in some field of classical literature; the Michael Reese Library Fund of $50,000, the income from which has already provided for the purchase of more than $60,000 worth of books; the Mary Jucksch endowment, of land valued at $1000; the Herman Royer and Dr. Charles M. Hitchcock endowments, the latter being of $7500; the endowment funds given by various classes for special purposes, and the endowment of $5000 provided by Colonel H. Weinstock for the Barbara Weinstock Lectureship on the Morals of Trade.

Scholarships are provided for—though as yet the applications from students for such aid outnumber by seven to one the awards which it is possible to make—by the Whiting endowment of $20,000 for the Department of Physics; by the LeConte Memorial Fund of $10,000, given by the alumni in honor of the revered brothers who served the University so long and so inspiringly; by the C. B. Houghton endowed

scholarship, which yields $150 annually; by the P. Charles Cole scholarship fund of $1000; by the Emanu-El fellowship in Semitic languages, for which $500 annually is given by the ladies of Temple Emanu-El through the good offices of Rabbi Jacob Voorsanger, whose own great services for many years as Professor of Semitic Languages have been so valued a gift to the University; by the scholarship in law recently established with a principal of $3563.22 by Mrs. Amelia V. R. Pixley, in memory of her deceased husband; by the scholarships at Harvard and at Yale, amounting each to not less than $200 annually, supported respectively by the Harvard and the Yale Clubs of San Francisco; by the James M. Goewey research fellowship; by the eighteen or more scholarships supported from the Joseph Bonnheim Memorial Fund, created by Mr. and Mrs. Albert Bonnheim in memory of their son; by the Hinckley scholarship of $300, paid yearly from the William and Alice Hinckley Fund; by the scholarships given by the alumnae of the Los Angeles High School, of $250; of the San Francisco Girls' High School, of at least $250, of the Haywards High School, of $150; and of the San José High School, of $125 annually; by the scholarships which for a number of years past have been made possible for many women students by Mrs. Hearst's generosity; by the scholarships provided by the State of California amounting to $3500 annually, and by the equal number of scholarships given for many years by Mr. Levi Strauss, and since his death continued in his memory by his nephews, Mr. Jacob Stern and Mr. Louis Stern; and within the past few months has come Professor Hilgard's provision for a scholarship of $125 for two years in memory of his wife and son, and the scholarship in Romanic Languages which shall keep green the memory of Professor Paget and his honored wife.

For loan funds, the class of '83 has provided $2500 as a Frank J. Walton Memorial Fund, and the class of '86 a fund of $3000. The class of 1903 has formed a nucleus

of a loan fund, amounting to $800, which it hopes hereafter still further to increase.

Until Mr. Charles Doe's magnificent bequest, the provision for the Library had fallen far short of the utter need of the University. For a number of years the only provision for the purchase of books was the income from the endowment of $50,000 given by Mr. Michael Reese in 1880. The library built by Mr. Bacon and the State received by Mr. Bacon's will many books and works of art aggregating in value at least $62,500, and similar gifts of libraries, collections, or funds for book purchases have been received from many sources. Among such gifts are those of Mr. Claus Spreckels, of $11,675.82 for books on economics and history; of Mr. Ernst A. Denicke, of $1080; of the citizens of San Francisco of German birth, of a German Library Fund of $1908; and the ladies of Temple Emanu-El, of $2580 for books in Semitic languages; of Mr. Collis P. Huntington, of a collection of *Californiana*, valued at $3,000; of the Bancroft-Whitney Company and several alumni, of law books valued at $1299; Mr. F. L. A. Pioché, of an art collection, the value of which is $14,000. and of books worth $1500; Mrs. Mark Hopkins, of a painting, whose estimated value is $20,000; Mr. Charles Mayne, of paintings and bronze busts valued at $3000; Mr. Louis Sloss, of a Judaical library valued at $1000; Rabbi Jacob Voorsanger, of the Ephraim Dinard collection of Semitic literature, the value of which is at least $1500; Mrs. Martha A. Hallidie, of 2500 volumes and of $500 per annum for the library of mechanical engineering; Mrs. Jane K. Sather, of 2130 volumes on law, in addition to other gifts; Mrs. W. H. L. Barnes, of valuable law books; Mrs. John J. Valentine of 500 volumes on political economy; Mrs. Sarah P. Walsworth, of over 2000 volumes; Dr. Asaph Hall of 579 volumes; Mrs. Mary A. Avery, of 300 volumes; the California Wine Makers' Corporation, of 250 volumes; Mrs. Hearst, Mr. D. O. Mills, Dr. M. Herzstein, Miss Rose Whiting, Mrs. V. T.

Forgeaud, Charles Samuels, Mrs. William H. Crocker, Frederick Billings, R. D. Yelland, and many others. The libraries of Professor Joseph LeConte and Professor Fèlicien Victor Paget are now on the library shelves. The more valued because of their witness to the fidelity of the alumni to their Alma Mater have been gifts by various classes of library funds, and constantly recurring gifts from certain individual alumni.

Valuable scientific collections from time to time have been presented to the University, and scientific expeditions have been made possible by private generosity, as for instance the palaeontological research provided for by Miss A. M. Alexander, at an expense of over $2500; the Crocker-Reid investigations in Mexico, carried on at an expense to date of $7500; the D. O. Mills expedition from the Lick Observotory to the Southern Hemisphere; various eclipse expeditions, and the significant anthropological studies and collection carried on at Mrs. Hearst's instance.

The support of the department of Anthropology, as it is at present constituted, entails upon Mrs. Hearst an annual expenditure of from fifty thousand to sixty thousand dollars. Expeditions under the direction of trained experts are in the field in Egypt and in Peru. Already in California, or upon the way, is the notable collection of classical antiquities gathered at Mrs. Hearst's instance in Mediterranean lands and in France, Germany, and England by the expert skill of Dr. Alfred Emerson. An elaborate ethnological and linguistic survey of California is in progress. An abundance of material illustrative of anthropology, archaeology, and art is being gathered from numerous sources by Mrs. Hearst's aid, through the instrumentality of the department of Anthropology. A striking and evident need of the University is a fit museum to make accessible to special students and to the world at large the priceless material thus being accumulated. Instruction both in the class-room and by series of public lectures is a part of the work of the

department, but thus far its principal functions have been those of research and of collection.

The tale of Mrs. Hearst's unending thought and love for the University is long to tell. She has provided scholarships, not only at the University but elsewhere, for many of its alumni in whom she saw promise of distinction in scholarship, letters or art. Wherever she has learned of special need, there her heart has responded always, whether it has been to strengthen a departmental library, to add museum material, to make possible the publication of the results of investigation, to light the library at night, when otherwise the students must have been deprived of the privilege of its use other than by day, to make possible travel important for scholarly purposes, to open to the members of the University the opportunity to hear lectures from distinguished scholars, to enlarge an overcrowded laboratory, to reëquip the gymnasiums, to hang engravings in Stiles Hall, or to to brighten the women's room in East Hall.

It was this desire to bring more of the inspiration of right surroundings into the lives of the women students which led to the equipping by Mrs. Hearst of clubs where groups of congenial women students might live together with the refining influences of mutual responsibility and of a college simulation of home life. It was this spirit, too, in which Hearst Hall was conceived, and so also the Hearst Domestic Industries came into being, with its provision for training in the finer arts of needlework. At the College Settlement in West Berkeley, Mrs. Hearst has shared in endeavor with the students who carry on there so excellent a work.

Through Mrs. Hearst's intelligent appreciation of the large opportunities which open in California for a really great medical school, it came to pass that she gave a superb modern research equipment for the laboratories of pathology and of anatomy, at a cost of over $27,000, and provision also for a portion of the salary of the chair of Pathology. To her generosity also the University owes the salaries of the

offices of Supervising Architect, of Medical Examiner of Women, and of Assistant in Hygiene, and portions of numerous other salaries.

That in its architecture the University should develop into a dignity and beauty befitting its future has been a cherished dream of Mrs. Hearst, and its realization she has made sure. Her work began by her provision for the expense of the International Architectural Competition to obtain permanent plans, an undertaking which cost much over one hundred thousand dollars. The plan once laid, Mrs. Hearst made it possible to commit the University's architectural interests to the competent hands of Professor John Galen Howard. The inauguration of the great undertaking was marked by her own erection of the Hearst Memorial Mining Building and by her son's gift of the Greek Theatre. Ground has been broken for California Hall, the gift of the State. This building, as also the Doe Library, plans for which are already nearing completion, will be in noble harmony with all future development of the University city and of those natural surroundings which deserve the best that art has to offer.

But it is not in these material things alone that Mrs. Hearst has won the gratitude and affection of all the University. Not least of her gifts has been that of herself, of her devotion to all the interests of the University, of her unwearying effort in its behalf, and of her loyal and untiring service as a member of the University community and as a Regent of the University.

SUMMARY OF GIFTS TO THE UNIVERSITY OF CALIFORNIA SINCE ITS ESTABLISHMENT.

I.	Grants by the Congress of the United States,		$1,533,120.00
	Land grants, valued at	$ 983,120	
	Annual money grants, total	550,000	
II.	Gifts of Mrs. Hearst,		1,221,192.25
	For buildings	599,875.53	
	For salaries (exclusive of those paid at the Affiliated Colleges.)	21,760	

For scholarships	63,363	
For Department of Mining (exclusive of amounts for erection of Hearst Memorial Mining Building and of mining laboratory, included under "Buildings")	5,200	
For archaeological research and department of Anthropology	226,674.45	
Other gifts to departments at Berkeley	56,142.16	
For Lick Observatory	8,100	
For Affiliated Colleges	45,672.10	
For the Hearst Architectural Plan	149,262.07	
Gifts not immediately to the University (*e.g.*, to the Hearst Domestic Industries, equipment of clubhouses for women students, entertainments to students, etc.)	45,142.94	
III. Gifts from Other Donors,		5,034,762.05
Lands	933,350	
Buildings	851,000	
Endowments	1,079,516.59	
Salaries	15,000	
Library (including gifts of works of art to Bacon Art Gallery)	250,358.32	
Annual gifts, total	54,802.64	
Miscellaneous gifts over $1000 each	85,750	
Gifts to departments, exclusive of those above mentioned	89,175	
Lesser gifts, (miscellaneous)	54,802.56	
To Lick Observatory	787,588.94	
To the Affiliated Colleges	833,418	

TOTALS.

Grants by the Congress of the United States, (I.)	$1,533,120.00
Gifts from private donors, (II. and III.)	6,255,954.30
Grand Total	$7,789,074.30

For the current fiscal year, from July 1, 1903, to June 30, 1904, the income of the University will amount to about

$850,000. Of this sum, $150,000 constitutes a portion of the State appropriation for the erection of California Hall, while about $700,000 is available for other University purposes.

The year's receipts from the State, exclusive of the $150,000 for California Hall, will aggregate about $430,000. Of this amount, $310,000 comes from the two-cent tax and $100,000 from the item for University support in the General Appropriation act.

From the United States comes $40,000; from mortgages $81,222.72; from rents about $42,000; from the interest on bonds and moneys deposited with the State, $49,905; from donations for scholarships $6,844.64; while the remainder of the year's income is made up from donations, students' fees and deposits, the interest given by the Treasurer of the University on daily balances, and miscellaneous sources productive of various small amounts.

THE MORALS OF TRADE.*

Dr. Albert Shaw.

The purpose of my address is to set forth some of the social and public aspects of trade and commerce in our modern life. We have heard much in these recent times concerning the State in its relation to trade, industry, and the economic concerns of individuals and groups. Rapidly changing conditions, however, make it fitting that more should be said from the opposite standpoint;—that is to say, regarding the responsibilities of the business community as such toward the State in particular and towards the whole social organism in general.

Some of the thoughts to which I would like to give expression might perhaps too readily fall into abstract or philosophical terms. They might, on the other hand, only too readily clothe themselves in cant phrases and assume the hortatory tone. I shall try to avoid dialectic or theory on the one hand, and preaching on the other. I take it that what I am asked to say is addressed chiefly to a student body, and that it ought to serve a practical object.

In the universities the spirit of idealism dominates. The academic point of view is not merely an intellectual one, but it is ethical and altruistic. In the business world, on the other hand, we are told that no success is possible except that which is based upon the motive of money-getting by

* First Barbara Weinstock Lecture delivered in Hearst Hall, February 4, 1904.

any means, however ruthless. We are told that the standards of business life are in conflict irreconcilable with true idealistic aims. It is this situation that I wish to analyze and discuss; for it concerns the student in a very direct way.

Our moralists point out the dangerous prevalence of those low standards of personal life and conduct summed up in the term "commercialism." We are warned by some of our foremost teachers and ethical leaders against commercialism in politics and commercialism in society. So bitterly reprobated indeed is the influence of commercialism that it might be inferred that commerce itself is at best a necessary evil and a thing to be apologized for. But if we are to accept this point of view without careful discrimination, we may well be alarmed; for we live in a world given over as never before to the whirl of industry and the rush and excitement of the market-place.

This, of all ages, is the age of the business man. The heroic times when warfare was the chief concern of nations, have long since passed by. So too the ages of faith,—when theology was the main spring of action, when whole peoples went on long crusades, and when building cathedrals and burning heretics were typical of men's efforts and convictions—have fallen far into the historic background. Further, we would seem in the main to have left behind us that period of which the French Revolution is the most conspicuous landmark, when the gaining of political liberty for the individual seemed the one supreme good, and the object for which nations and communities were ready to sacrifice all else.

Through these and other periods characterized by their own especial aims and ideals, we have come to an age when commercialism is the all-absorbing thing; and we are told by pessimists that these dominant conditions are hopelessly incompatible with academic idealism or with the maintenance of high ethical standards, whether for the guidance of the individual himself or for the acceptance and control of the community. It is precisely this state of affairs, then,

that I desire in a brief hour to consider. And I shall keep in mind those bearings of it that might seem to have some relation to the views and aims of students who are soon to go out from the sheltered life of the university,—under the necessity, whether they shrink from it or not, of becoming part and parcel of this great world of business and trade that has invaded almost every sphere of modern activity.

I have only recently heard a great and eloquent teacher of morals, himself an exponent of the highest and finest culture to which we have attained, speak in terms of the utmost doubt and anxiety regarding the drift of the times. To his mind, the evils and dangers accompanying the stupendous developments of our day are such as to set what he called commercialism in direct antagonism to all that in his mind represented the higher good, which he termed idealism. The impression that he left upon his audience was that the forces of our present-day business life are inherently opposed to the achievement of the best results in statecraft and in the general life of the community. He could propose no remedy for the evils he deplored except education, and the saving of the old ideals through the remnant of the faithful who had not bowed the knee in the temple of Mammon. But he pointed out no way by which to protect the tender blossoms of academic idealism, when they meet their inevitable exposure in due time to the blighting and withering blasts of the commercialism that to him seemed so little reconcilable with the good, the true, and the beautiful.

To all this the practical man can only reply, that if, indeed, commercialism itself cannot be made to furnish a soil and an atmosphere in which idealism can grow, bud, blossom, and bear glorious fruit,—then idealism is hopelessly a lost cause. If it be not possible to promote things ideally good through these very forces of commercial and industrial life, then the outlook is a gloomy one for the social moralist and the political purist.

It is not a defensive position that I propose to take in this address. I should not think it needful on this occasion

even so much as briefly to reflect any of those timorous and painful arguments *pro* and *con* that one finds at times running through the columns of the press, particularly of the religious weeklies, on such a question as for example whether nowadays a man can at the same time be a true Christian and a successful business man; or whether the observance of the principles of common honesty is at all compatible with a winning effort to make a decent living.

I am well aware that the thoughtful and intellectual founder of this lectureship, under which I have been invited to speak, takes no such narrow view either of morality on the one hand or the function of business life on the other. His definition of morality in business would demand something very different from the mere avoidance of certain obvious transgressions of the accepted rules of conduct, particularly of that commandment which says: "Thou shalt not steal." Nor, on the other hand, would his definition of the functions of business life be in any manner bounded by the notion that business is a pursuit having for its object the getting of the largest possible amount of money.

Those people who are content to apply negative moral standards to the carrying on of business life remind one of the little boy's familiar definition of salt. "Salt," said he, "is what makes potatoes taste bad when you don't put any on." According to that sort of definition, morality in business would be defined as that quality which makes the grocer good and respectable when he resists temptation and does not put sand in the sugar. The smug maxim that honesty is the best policy, while doubtless true enough as a verdict of human experience under normal conditions, is not fitted to arouse much enthusiasm as a statement of ultimate ethical aims and ideals.

If it were admitted that the sole or guiding motive in a business career must needs be the accumulation of money, I should certainly not think it worth while, in the name of trade morals, to stand here and urge young men who are to enter business life that they play the game according to safe

and well-recognized rules. I am not here to advise you to study the penal code and to familiarize yourselves with the legal definitions of grand and petit larceny, of embezzlement, or fraud, or arson, in order that you may escape certain hazards that beset a too narrow kind of devotion to business success. It is true, doubtless, that a business career affords peculiar opportunities, and is therefore subject to its own characteristic temptations, as respects the purely private and personal standards of conduct.

The magnitude of our economic movement, the very splendor of the opportunities that the swift development of a vast young country like ours affords, must inevitably in some cases upset at once the sober business judgment of men, and in some cases the standards of personal honor and good faith, in the temptation to get rich quickly; so that wrong is done thereby to a man's associates or those whose interests are in his hands, while still greater wrong is done to his own character. But, even against this dangerous greed for wealth and the unscrupulousness and ruthlessness which it engenders, it is no part of my present object to warn any young man. I take it that the negative standards of private conduct are usually not much affected by a man's choice of a pursuit in life. If any man's honor could be filched from him by a merely pecuniary reward, whether greater or less, I should not think it likely that he would be much safer in the long run if he chose the clerical profession, for example, than if he went into business. Sooner or later, his character would disclose itself. It is not, then, of the private and negative standards of conduct that I wish to speak to-night,—except by way of such allusions as these. And even these allusions are only for the sake of making more distinct the positive and active phases of business ethics that I would like to hold up for your consideration.

Many of you will doubtless choose, or have already chosen, what is commonly known as a professional career. The ministry, law, and medicine are the oldest and best

recognized of the so-called liberal or learned professions. Now what are the distinctive marks of professional life? Are the men who practice these professions not also business men? And if so, how are they different from those business men who are considered laymen, or non-professional? Obviously the distinctions that are to be drawn, if any, are in the nature of marked tendencies. We shall not expect to find any hard and fast lines. Many lawyers, some doctors, and a few clergymen are clearly enough business men, in the sense that they attach more importance to the economic bearings of the part they play in the social organism than to the higher, ethical, or intellectual aspects of their work.

I have read and heard many definitions of what really constitutes a professional man. Whatever else, however, may characterize the nature of his calling, it seems to me plain that no man can be thought a true or worthy member of a profession who does not admit, both in theory and in the rules and practices of his life, that he has a public function to serve, and that he must frequently be at some discomfort or disadvantage because of the calls of professional duty. The laborer is worthy of his hire; and the professional man is entitled to obtain, if he can, a competence for himself and his family from the useful and productive service he is rendering to his fellow men. He may even, through genius or through the great confidence his character and skill inspire, gain considerable wealth in the practice of his profession. But if he is a true professional man he does not derive his incentive to effort solely or chiefly from the pecuniary gains that his profession brings him. Nor is the amount of his income regarded among the fellow members of his profession as the true test or measure of his success.

Thus the lawyer, in the theory of his profession, bears an important public relation to the dispensing of justice and to the protection of the innocent and the feeble. He is not a private person, but a part of the system for sup-

porting the reign of law and of right in the community. Historically, in this country, the lawyer has also borne a great part in the making and administering of our institutions of government. If, as some of us think, the ethical code of that profession needs to be somewhat revised in view of present-day conditions, and needs also to be more sternly applied to some of the members of the profession, it is true none the less that there clearly belongs to this great calling a series of duties of a public nature, some of them imposed by the laws of the land, and others inherent in the very nature of the occupation itself.

It is true in an even more marked and undeniable fashion that the profession of medicine, by virtue of its public and social aspects, is distinguished in a marked way from a calling in life in which a man might feel that what he did was strictly his own business, subject to nobody's scrutiny, or inquiry, or interference. The physician's public obligation is in part prescribed by the laws of the State which regulate medical practice, and in very large part by the professsonal codes which have been evolved by the profession itself for its own guidance. It is not the amount of his fee that the overworked doctor is thinking about when he risks his own health in response to night calls, or when he devotes himself to some especially painful or difficult case. Nor is it a mere consideration of his possible earnings that would deter him from seeking comfort and safety by taking his family to Europe at a time when an epidemic had broken out in his own neighborhood.

I need not allude to the unselfish devotion to the good of the community that in so high a degree marks the lives of most of the members of the clerical profession, for this is evident to all observant persons.

On the other hand, it cannot be too clearly perceived that there is nothing in the disinterestedness, and in the obligation to render public service characterizing professional life that amounts to unnatural self-denial or painful renunciation,—unless in some extreme and individual cases.

On the contrary, professional life at its best offers a great advantage in so far as it permits a man to think first of the work he is doing and the social service he is rendering, rather than of pecuniary reward. I have myself on more than one occasion pointed out to young men the greater prospect for happiness in life that comes with the choice of a calling in which the work itself primarily focusses the attention, and in which the pecuniary reward comes as an incident rather than as the conscious and direct result of a given effort.

The greatest pleasure in work is that which comes from the trained and regulated exercise of the faculty of imagination. In the conduct of every law case this faculty has abundant opportunity, as it also has in the efforts of the physician to aid nature in the restoration of health and vigor in the individual, or in the sanitary protection of the community. I hope I have made clear this point: that pecuniary success, even in large measure, in the work of a professional man, may be entirely compatible with disinterested devotion to a kind of work that makes for the public weal, while it is also worthy of pursuit for its own sake, and brings content and even happiness in the doing. And it is clear enough, in the case of a professional man, that he is false to his profession and to his plain obligations if he shows himself to be ruled by the anti-social spirit; that is to say, if he considers himself absolved from any duties towards the community about him; thinks that the practice of his profession is a private affair for his own profit and advantage, and holds that he has done his whole duty when he has escaped liability for malpractice or disbarment.

But the three oldest and best recognized professions no longer stand alone, in the estimation of our higher educational authorities and of the intelligent public. In a democracy like ours, with a constantly advancing conception of what is involved in education for citizenship and for participation in every individual function of the social

and economic life, the work of the teacher comes to be recognized as professional in the highest sense. Teaching, indeed, seems destined in the near future to become the very foremost of all the professions. This recognition will come when the idea takes full possession of the public mind that the chief task of each generation is to train the next one, and to transmit such stores of knowledge and useful experience as it has received from its predecessors or has evolved for itself.

It is obvious enough that the work of the teacher gives room for the play of the loftiest ideals, and that its functions are essentially public and disinterested. But there are other callings, such as those of the architect and engineer, which have also come to be spoken of as professional in their nature. Their kinship to the older professions has been more readily recognized by the men of conservative university traditions, because much of the preparation for these callings can advantageously be of an academic sort. Architecture in its historical aspects is closely associated with the study of classical periods; while the profession of the engineer relates itself to the immemorial university devotion to mathematics. And in like manner the man who for practical purposes becomes a chemist or an electrician would be easily admitted by President Eliot, for example, to the favored fellowship of the professional classes for the reason, first, of the disciplinary and liberalizing nature of the studies that underlie his calling, and, in the second place, of the public and social aspects of the functions he fulfils in the pursuit of his vocation.

The architect, the civil or mechanical or electrical engineer, and the chemist, as well as the professional teacher, the trained librarian, or the journalist who carries on his work with due sense of its almost unequalled public duties and responsibilities,—all these are now admitted by dicta of our foremost authorities to a place equal with the law, medicine, and the ministry in the list of the profes-

sions;—that is to say, in the group of callings which, under my definition, are distinguished especially by their public character. And in this group, of course, should be included politicians, legislators, and public administrators in so far as they serve the public interests reputably and in a professional spirit.

In all these callings it is demanded not merely that men shall be subject to the private rules of conduct,—that they must not cheat, or lie, or steal, or bear false witness, or be bad neighbors or undesirable citizens,—but in addition and in the most important sense that they shall be subject to positive ethical standards that relate to the welfare of the whole community, and that require of them the exercise of a true public spirit.

The man of public spirit is he who is able at a given moment, under certain conditions, to set the public welfare before his own. Furthermore, he is a man who is trained and habituated to that point of view, so that he is not always aware of any pangs of martyrdom or even of any exercise of self-denial when he is concerning himself about the public welfare even to his own momentary inconvenience or disadvantage. Public spirit is that state or habit of mind which leads a man to care greatly for the general welfare. It is this ethical quality that to my mind should be the great aim and object of training.

On its best side, what we term the professional spirit is, then, very closely related to this commendable quality in men of a right intellectual and moral development that we call public spirit. The chief difference lies in this: that whereas all professional men may be public-spirited in a general sense, each professional man should, in addition, manifest a special and technical sort of public spirit that pertains to the nature of his calling. The lawyer should have a particularly keen regard for the equitable administration of justice. The doctor should truly care for the physical wholesomeness and well-being of the community. The clergyman should be alive to those things that concern

the rectitude and purity of life. The journalist should be willing to make sacrifices for the sake of the enlightenment of public opinion; and so on. Without either the general or the technical manifestations of public spirit, in short, the so-called professional man is a reproach to his guild and a failure in his neighborhood.

Now, what has all this to do with the moral standards that belong to the business career as distinguished from the professional life? My answer must be very clear and very direct if I am to justify so long an analysis of the ethical characteristics of the professions themselves. I have merely used the time-honored method of trying to lead you by way of familiar, admitted points of view to certain points of view that, if not wholly new, are at least less familiar and less widely recognized. The whole thesis that I wish to develop is simply this: that however it may have been in business life in times past and gone, there has been such a tremendous change in the organization and methods of the business world and also in the relative importance of the functions of the business man in the community, that the distinctions which have hitherto set apart the professional classes have become obsolete for all practical purposes in many branches and departments of the business world.

At least, the work of the responsible leaders is no longer to be regarded as essentially a thing of private concern and free from public responsibility. If the business world is not characterized, first, by public spirit and a sense of public duty in general, and, second, by the special and technical sense of public obligation that pertains to particular kinds or departments of business activity, then it is falling short of its best opportunities and evading its providential tasks. It is for the modern business world to recognize the conditions that have in the fullness of time given it so great a power and so dominant a position; and it must not shirk the responsibilities that belong to it as fully and truly as they belong to any of the professions.

I hold, then, that the young man of education and opportunity who proposes to go into a business career enters it not merely with a low and unworthy standard if his sole motive and object be to acquire wealth, but he also enters it in disregard of the ideas that fill the minds of the best modern business leaders. He shows a pitiable lack of appreciation of the elements that are to constitute real business success in the period within which his own career must fall.

Let us consider, briefly, the evolution of our present-day economic or business life, and then take note of the necessary place that particular classes of business men must hold in the structure of our society. I, for my part, look upon this last century of economic progress,—under the sway of what is often called "capitalism" as a term of reproach,—as an immeasurable boon to mankind. It began with the practical utilization of several great inventions, notably that of steam power, which broke up the old household and village industries, gave us the modern factory system, and along with the development of railroads gave us the modern industrial city. This new and revolutionizing system of industry and business forced its way into a world of poverty, of disease, of depraved public life, of low morals in the main pervading the community,—a world for the most part of class distinctions in which the lot even of the privileged few was not a very noble or enviable one, while the state of the vast majority was a little better than that of serfs.

Many writers have sought to throw a charm and a glamour over that old condition of economic life and society that followed the break-up of feudalism and that preceded the creation of our new political and industrial institutions. But with some mitigations it was for most people a period, as I have said, of squalor, disease, and degradation. The fundamental trouble could be summed up in the one word *poverty*. The mission of the new industrial system, for the most part unconscious and unrecognized, was to transform

the world by abolishing the reign of poverty. Doubtless it would be desirable if the improvement of conditions, material and spiritual, could go forward with exactly even pace on some perfectly symmetrical plan. But history shows us that the progressive social movement has proceeded first in one aspect, then in another, on lines so tangential, often so zigzag, that it is difficult until one gets distance enough for perspective, to see that any true progress has been made at all.

Thus, the modern industrial system, which found the conditions of poverty, disease, and hardship prevalent, seemed for quite a long time, in its rude breaking up of old relations and its ruthless adherence to certain newly proclaimed principles, to have brought matters from bad to worse. The squalor and poverty of the village of handloom weavers seemed only intensified in the new industrial towns to which the weavers flocked from their deserted hamlets. Manufacturers were doing business under the fiercest and most unregulated competition. Economists were demonstrating their "law of supply and demand" and their "iron law of wages" as capable in themselves of regulating all the conditions and relations of business life. Epidemics raged and depravity prevailed in the middens of the new factory centers.

But things were not going from bad to worse. The beginnings of a better order had to be based upon two things: first and foremost, the sheer creation of capital; second, the discipline and training of workers. In the first phases, the new modern business period had to be a period of production. There had got to be developed the instrumentalities for the creation of wealth. Until the industrial system had raised up its class of efficient workers and had created its great mass of capital for productive purposes, there could be no supply of cheap goods; and without an abundant and cheap output there could be no possible diffusion of economic benefits;—in other words, no marked amelioration of the prevailing poverty.

It required a development of wealth to lift our modern peoples out of a poverty too grinding and too debasing for intellectual or moral progress. It is true that the factory towns, created as they have all been by modern industrial countries during the past century,—brought their distinctive evils. There was overcrowding in ill-built tenement houses; and long hours for women and children in the factories. Yet with these and many other disadvantages, the new industrial system made for discipline and for intelligence, and above all for a new kind of solidarity and for a sense of brotherhood among workers.

In due time the worst evils began to be mitigated, largely through the application of those very methods of organization which had characterized the new kind of industry itself. Thus for men who had applied steam power to manufacturing and had begun to build railroads, it was soon perceived to be a matter not only of sanitary and social service, but of pecuniary profit, to provide water-supplies, public illumination, and other conveniences to the crowded city dwellers. Moreover, with the progress of industry and the development of railroads and steam navigation, production and trade took on an ever-increasing volume.

Then the world began to be less poor. There had been no rich men in the modern sense, and of course no such thing as capitalized corporations for production. The richest man in the United States at the time of his death, a little more than a hundred years ago, was George Washington, with his land and his slaves; and so in England and France there were no rich men in the modern sense, that is to say, no men who controlled great masses of productive capital. The men of wealth were those who held landed estates. The chief business of all countries was agriculture. The capitalistic system in industry and trade existed in its rudiments and in limited measure; but all its great achievements were yet to be wrought.

All modern business life, then, is the result of this growth of productive capital, and its application and con-

stant reapplication to the production of wealth. It made its way by virtue of an intense individual initiative and a fierce competitive struggle. But unlovely as were these things, many of their phases were necessary at a certain stage. It was this fierce competition that compelled capital to pay the lowest possible wages in order to market cheap goods. But the same situation stimulated the use, one after another, of new labor-saving inventions in order to increase the per capita productivity. This process was attended by the higher efficiency of the worker and an increase in his earning capacity. As his position began to improve, the worker had gained some hope and cheer; and he and his fellows began to organize, with the result that both wages and conditions of labor were steadily improved, and the workman began to attain approximately his share of benefits.

All this is a familiar story, although the depth of its significance is beyond the compass of any living human intelligence. It is easy to say in a glib sentence that the amount of wealth produced every few years nowadays is equal to all the accumulated wealth of all the centuries down to the early part of the nineteenth; but the social meaning of so great a change baffles all attempt at full comprehension.

The competitive system, which had been essential to the launching of this modern period of production, and which had given to it so much of its irresistible momentum, at length brought the economic organization to a point of development where, in some fields of production, it was no longer a benefit. The accumulation of capital had become so large,—and with new inventions the possible output had become so abundant, that it was well-nigh impossible to trust to the blind working of demand and supply to regulate things in a beneficial way. It began to dawn on men's minds that a successful period of competitive economic life might lead to a period largely dominated by non-competitive and coöperative principles.

The superior possibilities of this newest régime, along with its many difficulties and perplexities, began to captivate the minds, not merely of theoretical students and onlookers, but, even more, of great masters of industry and productive capital. It began to be seen that in place of blind and fierce competition as a regulator of prices and as an adjustor of supply to demand, there might come to be gradually substituted some more consciously scientific methods of business administration and of the adjustment of production to the needs of the market.

Furthermore, with the development of business on the great scale, capital had become relatively abundant and cheap, while, on the other hand, labor was becoming relatively expensive and exacting. It was evident that the modern system of industry had passed through its earlier period to one of comparative maturity; and that the problem of wealth production was no longer so exclusively the pressing one, but that the problems of distribution were demanding more attention. How to organize business life on a basis at once stable and efficient; how to see that capital was assured of a normal even though declining percentage of dividends; while labor should be rewarded according to its capacity and desert,—were problems which took on public rather than private aspects. And when the business world began to face these problems with the consciousness that they were to be met, it had virtually passed over from the lower plane of moral and social responsibility to the higher plane where what the directing minds do or decide is not measured solely by immediate results in money-getting, but also by the test of larger social and public utilities.

Although these conditions are not novel ones, and are therefore not difficult to grasp even when stated in general terms, it is still true that the concrete often helps to make the point appear more pertinent. Take then the railroad business as it is now shaping itself, in comparison with its conditions and methods twenty or thirty years ago. The railroads have always existed by virtue of charters which

gave them a quasi-public character, and have always been theoretically subject to a certain old principles of English common law under which the public or common carrier, like the innkeeper, performs a function not wholly private in its nature. Nevertheless, in its earlier stages the railroad system of this country was in large part constructed and operated by its projectors with no sense whatever of responsibility for their performance of public functions, but with the idea that they were carrying on their own private business in which interference on the part of the public was to be avoided and resented. They fought the railroad codes of State legislatures in the federal courts; they made oppressive rates to give value to new issues of watered stock; they discriminated in favor of one city and against another; by a system of secret rebates they made different terms with every shipper, thus enabling one merchant or manufacturer to destroy his competitor; and they pursued in general a career at least anti-social in its spirit and false and short-sighted in its principles.

A profound change—would that it were already complete!—is coming about in this great field of transportation business. It is perceived that many of the evils to which I have alluded were incident to the speculative periods of construction and development in a new country. The best new leaders in the business of railway administration now see clearly that it is the duty of the railroads to work with and for the public and not against it. The railroads are gradually passing out of the hands of the stockjobbers and speculators, into the control of trained administrators. It is to be remembered that in a country like ours, the largest single branch of organized administration is that of the railroads. We have reached a point where their relations to all the elaborate interests of the community are such that their public character becomes more and more pronounced and evident. It was only the other day that a brilliant railway administrator, Mr. Charles S. Mellen, recently president of the Northern Pacific, and now president of the

New York, New Haven, & Hartford system, made some statements in an address to the business men of Hartford at a Board of Trade meeting. With much else of the same import, he made the following significant remarks:

"If corporations are to continue to do their work as they are best fitted to, those qualities in their representatives that have resulted in the present prejudice against them must be relegated to the background.

"They must come out into the open and see and be seen. They must take the public into their confidence and ask for what they want and no more, and then be prepared to explain satisfactorily what advantage will accrue to the public if they are given their desires, for they are permitted to exist not that they may make money solely, but that they may effectively serve those from whom they derive their power. Publicity should rule now. Publicity, and not secrecy, will win hereafter, and laws will be construed by their intent and not killed by their letter; otherwise public utilities will be owned and operated by the public which created them, even though the service be less efficient and the result less satisfactory from a financial standpoint."

Mr. Mellen's state of mind is that which ought to prevail among all the managers of corporations which enjoy public franchises and perform functions fundamental to the welfare of the community. There will at times be prejudice and passion on the part of the public, and unfair demands will be made. We shall not see the attainment of ideal conditions in the management or the public relations of any great business corporations in our day. But the time has come when any intelligent and capable young man who chooses to enter the service of a railroad or of some other great corporation may rightly feel that he becomes part of a system whose operation is vital to the public welfare. He may further feel that there is room in such a calling for all his intelligence and for the exercise and growth of all the best sentiments of his moral nature.

In the vast mechanism of modern business the constructive imagination may find its full play; and the desire to be of service to one's fellow men in a spirit reasonably disinterested may find opportunity to satisfy itself every day. Under these circumstances there is no reason why railway administration should not take on the same ethical standards as belong rightly to governmental administration, to educational administration, or to the best professional life.

The same thing is clearly true when one considers nowadays the delicate and important functions of the world of banking and finance. The old-fashioned money-changer and the usurer of earlier periods were regarded as the very antitheses of men engaged in honorable mercantile life, and especially of those who possess a social spirit and the desire to be useful members of the community. But in these days the banks are not merely private money-making institutions, but have public functions that admittedly affect the whole social organism from the government itself down to the humblest laborer. They must concern themselves about the soundness and the sufficiency of the monetary circulation; they must protect the credit and foster the welfare of honest merchants and manufacturers; they must coöperate in critical times to help one another, and thus to sustain the public and private credit and avert commercial disaster; they must at all hazards protect the savings of the poor. Thus the banks, like the railroads and many other corporate enterprises, are quasi-public affairs. in the conduct of which the public obligation grows ever clearer and stronger.

We are not at heart—in this splendid country of ours—engaged in a mad struggle and race for wealth. We are engaged rather in the greatest effort ever made in the world for the upbuilding of a higher civilization. To avow that this civilization must rest upon a physical and material basis,—that is to say, upon a high development of our productive capacity and upon a constant improvement in

our processes of distribution and exchange,—is not, on the other hand, to confess that our civilization is materialistic in its nature or in its aims. I was very glad, the other day, to read the wholesome and understanding words of a distinguished Boston clergyman who is just now coming to New York to take charge of an important parish. He declared that this nation was founded on an ideal, and that the most powerful influences in its life to-day are working toward noble ideals. The moral and spiritual tone of the country, he asserted, is higher than ever, in spite of the accidents of wealth and poverty. He declared that the great host of men and women who cherish our ideals will continue to stamp idealism upon the minds and hearts of our youth, and that they in turn "will convert wealth to the service of ideals."

Such views are not merely the expressions of a comfortable optimist. They are true to the facts of our current progress. There are vast portions of this country to-day in which the enterprising business man who can succeed in selling to the farmers an honest and effective commercial fertilizer is the best possible missionary of idealism, in fact a veritable angel for the spread of sweetness and light. There are regions where the capitalist or the company that will build a cotton mill or some other kind of factory is rescuing whole communities from degradation. It is poverty that has kept the South so backward, and it is poverty alone that explains the illiteracy and the lawlessness not merely of the Kentucky mountains, but of great areas in other States as well. Good schools cannot be supported in regions like those, for the palpable reason that the taxable wealth of an entire school district cannot yield enough to pay the salary of a teacher. But when modern business invades those uplands, utilizes the water-power now wasted, opens the mines, builds cotton factories, or foundries, the situation changes almost as if by magic.

There will, indeed, ensue a brief period of disturbance due to changed social conditions,—to women and children

in factories, and other things of incidental or serious disadvantage. But, as against a survival of the sort of life that was widely prevalent a century or two ago, all the phenomena of our modern industrial life make their appearance, in full development. The one-room cabin gives place to the little house of several rooms. There is rapid diffusion of those minor comforts and agencies which make for self-respect and personal and family advancement. The advent of capital, that is to say, of taxable property, is speedily followed by the good schoolhouse and the good teacher.

It is instructive to note the transformation that is thus taking place in one county after another of the Carolinas, or Georgia, or others of the Southern States, because the conditions make it possible to witness within a single decade the triumph of those business forces which, while they have even more truly and completely transformed the prosperous parts of America and Europe, have operated more gradually through longer periods, and therefore in a less easily-perceived and dramatic fashion.

Our modern ideals have required, not the refinement and the culture of the select few, but the uplifting and progress of the multitude. This could only be possible through a general development of wealth, so vast in comparison with what had previously existed as to constitute the most highly revolutionary fact in the history of human civilization and progress. The man, therefore, who has a clear perception of those laws of mind and of society under which modern economic forces have been set at work, cannot for a moment think that the end and outcome of this modern business system is a new kind of human bondage, "the rich growing richer and the poor growing poorer;" or that it can mean any such thing as the elevation of property at the expense of manhood.

Even if it were a part of my subject to discuss the growth of vast individual fortunes as an incident of this modern development of wealth, which it is not, there would

be no time for more than a passing allusion. And in making such an allusion, I might be content to call attention to my earlier dictum, that progress is not upon direct lines, but tangential or zigzag. When the factory appears on the Piedmont slopes of the Appalachian country, it may indeed make a fortune for the missionary of civilization who planted it there. But meanwhile it has given the whole neighborhood its first chance to relate itself to the civilized world. I am content for the present to leave that neighborhood in possession of its opportunities, serenely confident that it will in due time work out its own completer destiny.

When the capitalist has retired from the scene of his exploitation, will the day arrive when the regenerated neighborhood will own that factory, and others, too, for itself? Very likely. In any case, the neighborhood has been emancipated from its worst disadvantages.

In short, I have little doubt but that the further progress of our civilization will give effect to certain economic laws and tendencies, and to certain social rules and principles, that will make for a higher measure of equality in the distribution of realized wealth. Meanwhile wherever a practical step can be taken to remedy an evil, let us do what we can to promote that step. Let us recognize the already great possibilities for useful participation in the social and public life that belong to an honorable business career.

From the standpoint of the intellectual interest of the young man going into business, let it be borne in mind that there are scientific principles underlying every branch of trade or commerce or industry, and that there is almost, if not quite, as much room for the delightful play of the faculty of imagination in the successful conduct of a soap business as in writing poetry or in making statuary groups for world's fairs. The cultivation of public spirit in the broad sense, and the determination to be an all-around good and efficient citizen and member of the community,

will often help a man amazingly to discern the opportunities for usefulness that lie in the direct line of his business work. The more thoroughly he studies underlying principles—whether of a technical sort as related to his own trade, or of a general sort having to do with the organization and general methods of commerce—the less likely he will be to take narrow and anti-social views of business life. The high development of his intelligence in relation to his own work will show him the value in his business—as in all else in life—of the standard thing, the genuine thing, the thing that will bear the test as contrasted with the shoddy, or the inferior, or the spurious.

Our technological schools, our colleges of mechanic arts, our institutes of agriculture and their related experiment stations,—these are all teaching us many valuable object-lessons regarding the way in which the wealth of the individual and of the community can at the same time be advanced by scientific methods. Thus it is coming about that business life is ever more ready to welcome the most highly trained kinds of intelligence, inasmuch as it is perceived that specialized knowledge is henceforth to be the most valuable commodity that a man can possess.

I have already said that the delicate problems of distribution must be faced ever more frankly and liberally by the modern business world. Thus, those who control capital, or administer capitalized enterprises, cannot afford any longer to be without a knowledge of the history and significance of the labor movement. We should not have had the desperate struggle between anthracite coal corporations and the miners in Pennsylvania, a year or so ago, if there had been a full understanding on the part of the capitalists of the honorable and valuable nature of trade agreements, and particularly of the history of the relations of capital and labor in the bituminous coal districts of the United States. I am speaking now from the standpoint of the business man. There is much to be said, doubtless, in respect to the shortcomings and the sometimes fatuous and

even suicidal methods of the labor organizations. But for the modern business man who cares to take his place influentially in commerce, in social life, and as a man among men in his city or his commonwealth, it is no longer justifiable to be unfamiliar with the labor question in its economics and its history.

Herein lies one great service that the university can perform (and our best colleges and universities are to-day performing it with marked intelligence and ability), the service, namely, of providing very liberal courses for young men who expect to go into business, in the general science of economics, in the history of modern economic progress, in the development of the wage system, and in the history and methods of organized labor, and in very much else that helps to place the life of a practical man of business affairs upon a broad and liberal basis. In the early days of our history it was the especial function of the college to train young men for the ministry. In a somewhat later period it was notably true of institutions like Yale and Princeton that their training seemed to fit many men for the law and for statecraft. We had, you see, passed from that theocratic phase of colonial New England life to the political constructive period of our young republic.

But we have been passing on until we have emerged in a great and transcendent period of commercial expansion and scientific discovery and application. It is a hopeful sign, therefore, that our universities are discovering and recognizing the demand that present-day conditions impose, and are training many men in the pursuit of modern science, while they are training many others in the understanding of the application of social and economic principles to modern life. All this they are doing and can well do without ignoring the value of the older forms of scholarship and culture.

Doubtless I have already taxed your patience, but I have a few concluding remarks to make upon the ethical relations of the business world of to-day toward the polit-

ical world; that is to say, towards organized government, whether in its sovereign or in its subordinate forms. We cannot take too high a ground in proclaiming the value, for the present at least, of the political organization of society. I should like to dwell upon this point, but I must merely state it. If the State: *i.e.*, the political form of social organization, is valuable,—it stands to reason that it must be respected and maintained at its best. It is also obvious that it will have a higher or a lower character and efficiency, according to the attitude towards it taken by one or another of the dominant factors that make up the complex body politic.

Thus, for example, it is the feeling of men in control of the political organization in France to-day that the Church, as a great factor in the social structure of the nation, is essentially hostile to the spirit and purposes of a liberal republic. Hence a great disturbance of various relationships. I do not cite that instance to express even the shade of an opinion. My point is that if the political organization of society is desirable and to be maintained, it is a fortunate thing when one finds the dominant forces of society rendering loyal and faithful support to the laws and institutions of government and recognizing without reserve the sovereignty of the State. Yet in our own country there is a widespread feeling that many of our most potent forces and agencies in our business life are not wholly patriotic, in that they are not willing in practice to recognize the necessity of the domination of government and of law. I do not believe that this is permanently and generally true. It would constitute a great danger if it were a fixed or a growing tendency.

As matters stand, however, every one must admit that there is an element of danger that lies in the very fact that as a nation we are in a condition of peace, content, and prosperity, and do not find our political institutions irksome. The danger consists in this: that under such circumstances the rewards of business and professional life

are for the most part so much more certain and satisfactory than those which come from the precarious pursuit of politics, that public interests have a tendency to suffer from being in weak hands, while private interests have a tendency to assert themselves unduly, from being in the hands of men of superior force. Thus it happens that it is often difficult for the State to maintain that dignity, that mastery, that high position, as the impartial arbiter and dispenser of justice, which it is now even more necessary than ever that it should maintain, in order that the whole social organization should keep a true harmony and a safe balance.

At present, the State is largely concerned with the maintenance of conditions under which the economic and business life may operate equally and prosperously. The State in one sense is the master of the people. In another sense it is merely their creature and their agent for such purposes as they choose to assign it. Is the State then to absorb the industrial functions, and are we to develop into a socialistic commonwealth? Or, shall the political democracy and the coöperative organization of business life go on side by side, related at many points but in the main distinct from each other? Whatever the relation of the State to industry may be destined to become in the distant future, we may be sure that there will be no rash upheavals, no harmful socialistic experiments, if the potent business world clearly sees how necessary to its own salvation it is that the State shall be maintained upon a high plane of dignity and honor, and that the official dispensation of justice, as well as the official administration of the laws, shall be prompt, just, and impartial.

There is no higher duty, therefore, incumbent upon the business man of to-day than to bear his part in promoting and maintaining the purity of political life. The modern business man should regard good government as one of the vital conditions of the best economic progress. Yet scores of instances are at hand that show to what a painful extent

certain business interests again and again, for purposes of immediate advantage,—to secure a franchise, to escape a tax, or to procure some improper favor or advantage at the hands of those in political authority,—have employed corrupt methods and thus stained the fair escutcheon of American business honor, while breaking down the one most indispensable condition of general business progress, namely, honest and efficient free government.

I will not dwell upon these things. It is enough to say that they are things the modern business man must have upon his conscience. For, if such offenses come by way of the business world, their remedies must also come, and indeed can only come, by that same path. In our municipal life, for example, it is the aroused interest and zeal of the best business community for better government and better conditions that can alone produce important results. Happily, all over the country we find chambers of commerce, boards of trade, merchants' associations, and other bodies of men of practical business affairs, taking their stand for the transaction of public business upon high standards of character and efficiency. I have no doubt or fears as to what the result will be. All of our large cities are themselves purely the creations of modern industrial, commercial, and transportation conditions. And I hold that these very forces of industrial and commercial life that have created the problems by bringing together great masses of people in crowded communities, must and can in turn solve the problems by the application to municipal government of the scientific and intelligent principles which belong to the best phases of business life.

All of this relates to my subject this evening, but I must pass it by with a mere statement or two. It belongs to the developed constructive imagination and to the trained ethical sense of the modern business man to perfect the transit systems, to improve the housing conditions, to assure cheap sanitary water-supplies, cheap illumination, and, above all, due provision for universal education, parks, museums, and

opportunities for recreation,—in short, all possible improvements of enviroment that can make life in our cities not merely endurable but beneficial for the people. Here, then, is furnished a great field for the definite and conscious aspirations of the successful man of business. Here lies a great many-sided work for social and moral as well as physical and material progress which the business man, in the quality of good citizen and man of public spirit, is fitted better than any one else to accomplish.

The intelligent young man who holds before himself ideals of usefulness that extend to such projects as these, may be sure that the modern conditions of life will bring him great opportunities, and he may feel that he is thus lifting his business career up to the plane of idealism that has, in the past, been reserved for a few exclusive professions. Partly through his own endeavors,—largely through association in commercial or other organizations with others,—he may help to accomplish for the benefit of all his fellow-men of a great community one step after another in the direction of public works that will meet the needs of a high civilization.

Some of the most useful men, as well as the most unselfish and devoted, with whom I come in contact are successful business men of large affairs. They are modest and unassuming; simple and direct in their methods; wide as the world in their sympathies; lofty as the stars in their aspirations for human progress; sagacious beyond other classes of men, and respected to the point of veneration by those who know them well, because they are men of deeds rather than of words, who make good their professions from day to day. Business has not so narrowed them, nor has devotion to philanthropic ends or public reforms so distorted tneir mental visions, that they are not able to enjoy what is good in life, whether books, music, pictures, the companionship of friends, or the restful contact with nature in field or forest. The lives of such men are dominated by certain fixed ethical standards. Given such

moral landmarks, the remarkable conditions and unequalled opportunities of modern business life will promote the frequent development of men of this kind, with their breadth of view and strength of mind and character. It is the positive and aggressive attitude toward life, the ethics of action, rather than the ethics of negation, that must control the modern business world, and that may make our modern business man the most potent factor for good in this, his own, industrial period.

MEMORIAL DAY ADDRESS.*

WILLIAM CAREY JONES.

"Render to the Manes what is due them," says Cicero; "they are men who have quitted this life; consider them as divine beings." The ancients in their cherishing attention to their departed relatives had one day in the year—among the Romans it was the first of March—when it was the duty of every family to put out its sacred fire and light another immediately.

The significance of the day that you have chosen for relighting the fire on our University's sacred hearth, of commemorating the purified members of our community, is that it is the birthday of Joseph LeConte. In selecting this day you have given evidence of a beautiful instinct of our nature. In the lifetime of Professor LeConte it was a day of rejoicing, of felicitation that yet another year had come round and that a beloved presence was still with us. The great fact of that day was the opening of the fountains of your love. The most signal fact in Professor LeConte's influence on the University community was the instilling, or the educing, of an unqualified love. It was not admiration, reverence, veneration, that he drew forth. He may have been the object of such sentiments; he may have had almost adoration, worship; but what he had in the supreme degree was the love of all the beings amongst whom he

*Delivered at the Harmon Gymnasium, February 26, 1904, on the occasion of Memorial Day.

dwelt. And that was a far more wholesome emotion, more wholesome for the individual and for the collective body, than one of veneration or worship. The attitude of veneration is one to be directed toward another Power than the human. The individual or community cannot indeed be in its healthiest state that does not find in other God-given natures, human though they be, somewhat to admire, to respect, to reverence, and having the sentiment hesitates not to manifest it. And there have been and are amongst us those who are worthy of respect and reverence, and who, even in the unreverential spirit of the age, receive the homage they merit. It is but a few nights ago, in a notable University gathering, that I saw this feeling illumining the countenances of many young people as they listened to the words of a master. But it was not this sentiment that chiefly marked our attitude to Professor LeConte. The noblest service he rendered was in making us all love him, and in our not being ashamed to admit it. The sentiment swelled in our hearts, and we blushed not to express it. I shall not try to specify the quality of this love by calling it filial, or brotherly, or by the use of other adjective—it was just love. And as love transforms the individual and envelops him in a purity of light that he knew not before the touch of love came upon him, so I think a community like ours of the University is mellowed and enriched by the atmosphere that is cast about us by the love of Joseph LeConte.

This is one quality that characterizes the day, that of love; and it tinctures the whole sentiment with which we approach the service of the hour. Another wholesome quality is that a day of rejoicing is used as a day of commemoration. Individually at least we feel the pang, the bereavement arising from our losses. But the feeling is necessarily and beneficently a transitory one; and so for a community, if not for a family too, the fitting day to celebrate after death, as during life, is a birthday. For however truly we may believe that death is a new and higher

birth, death is for those who remain a matter of sorrow and desolation; and to commemorate our friends on the anniversary of their death is to revive and emphasize the fact of their departure. But commemorating them on this birthday is signalizing the most joyous event of human experience and signifying our belief in the greater rebirth.

The year's call to other duties numbers those of all ages—undergraduate and graduate students, officers of the University in early life and those who had achieved a full life's work. I still recall with vivid memory the anguish that went through the student-body, during my student days, when the news came of the sudden death, through accident, in the Sierra Nevada mountains, of one of the choicest spirits that ever visited our academic home, John Taylor, of Grass Valley. The loss to us of that comrade is repeated in the loss of comrades to the students of to-day. Young lives full of hope, ambition and promise are the sacrifices laid by mortality at the altar of immortality.

Not only comrades of you the students, but colleagues of us the Faculty, and no less your friends than your instructors, have passed among the Manes of the University. The fair spirit of Edith Putnam Dart departed in the earliest usefulness of her life; the soul of Professor John Henry Dye, faithful officer and genial friend, all too briefly identified with the University; of Professor Louis Du Pont Syle, the wings of his life broken in self-sacrifice; of Professor Martin Kellogg, after the longest service granted to any one to devote to the University; and of Professor Felicien Victor Paget, after a two years' contest with the inevitable.

Professor Syle served the University for many years. He was a man of great versatality, perhaps too great, for while he had an undoubted vocation, he was not always steadfast in the claim for and pursuit of that vocation. He could do well in many lines; he could do best in a special line. It is a matter of gratitude that he was able to fulfill his mission so far as he did; it is a matter of deep regret

that he was not able to accomplish it to the full extent of his native talent. He was appreciated and loved far beyond what he knew; and there was the pity of it, for his heart craved for sympathy. Sensitive to real or fancied wrong, he was pliable as a child to kind and friendly influences. He was independent in his views and fearless in maintaining them. The many students who received his stimulating aid; the many friends who knew his sincere and genuine nature; and all who admire the qualities of honesty, independence and loyalty, will join to-day in commemorating his merits and invoking the presence of his blessed shade.

Professor Kellogg's services and character have been portrayed to us in the special memorial exercises held last September. They were then depicted with an eloquence and an amplitude of treatment that leaves little to be said. Let me remind you, however, that he was Professor in the College of California from 1860 to 1869; from 1869 to 1893 he was Professor in the University; from 1890 to 1893 he was Acting President, and from 1893 to 1899 he was President of the University; and from 1899 to 1903 he was Professor Emeritus, and in that capacity he did the full work of an instructor. And let me further remind you that in this service of forty-three years there was never any shrinking from duty—that it was a continued and unremitting devotion to the duties of his office. He never deviated from his appointed pathway, either for idle dalliance or to gain some eminence whence by spectacular effect he might win the plaudits of the multitude. Never a factitious or a meretricious act marked the course of his social or professional life. He was absolutely the same, so far as any human eye could see, from hour to hour, from day to day, from year to year. He accepted what he was asked to do; he never sought the opportunity. He was ready habitually to occupy the humble place. If he was asked to be spokesman, to be guide: "Yes," his simple response, he would essay that rôle. For when his selection was fitting, he would recognize the fact. His self-abnegation

was not owing to self-depreciation. He knew the measure of his powers, and felt the possibilities of his success. But he ever acted in accordance with his character. And that is wherein lies the lesson of his life. That is what constitutes him one of the moral pillars of the University. And in recognizing that position of Professor Kellogg in the structure of the University, I must mention his co-equals of moral service in the upbuilding of this spiritual temple of California. First, there is the high-minded and philosophic Henry Durant, who planted the modest germ of human culture here, and who lived to see and enjoy for a brief time the fruition of his hopes, and best of all to foresee the larger increase of moral product in the many coming generations. Then there is, secondly, the man whom I personally most revere, twenty years professor, seven years president, John LeConte. Thirdly, the commanding intellect in California in his day, Horatio Stebbins. And, fourthly, the one whose birthday this is. These to my mind are the moral pillars on which the foundations of the University rest.

Professor Kellogg had a sustained character: in the thirty-two years of personal acquaintance, some of them years of very close and intimate association, I never observed a single breach in the perfect line, a single tilting in the perfect equipoise of that character. No matter what the trying occasion, and there were many; no matter what the great emergency to test a man's heroic strength, and such emergencies were not lacking; no matter how many causes of annoyance and friction, that catch a man off guard, irritate and goad him past endurance; Martin Kellogg met the occasion, was equal to the emergency, was never off guard, and never suffered beyond *his* endurance. I said he was never off guard; but that does not exactly express my appreciation of the man. He never showed that he was consciously on guard. It came to grow on one in years of association with him that, in that well-built and strongly fortified character of his, he needed to give no thought to outposts

and sentinels to his conduct. The strength of his unassailable position lay in the fact that every day and hour he was performing his duty. One unswerving service of devotion to duty could not but build up this adamantine character. I know not what was the central essence of Martin Kellogg's nature, whence sprang the motive force. He was not a man of many confidences. Doubtless one could have penetrated, if he had sought through sympathy's seductive devices, into his heart's secret thoughts and struggles. But his life tells us only that, whatever may have been the anguish and passionate longings of his heart, these emotions were never shown to the world; never displayed for the purpose of winning sympathy, for gaining applause, for breaking the force of an attack, or through mere human weakness. A calm front was always exhibited to the world: stolid to the indifferent and inimical, diffused with a kindly radiance to the friendly. A wonderful character, this. We read and hear much of "character-building." In the case of Martin Kellogg's massive character, if not in every case under the sun, this process must have been an essentially simple one, while incontestably an immensely difficult one. What is the process? To do what he was called to do in the way and at the time he was called to do it. No shirking; no evasion; no striving for glory; no straining after effect; no trifling with moral principles; but the quiet, steady, unperturbed laying of stone upon stone until life's task is finished.

The last to enter the heaven that we keep about us is Professor Paget. Born in France, in the mountains of the Jura, educated at the Universities of Strassbourg and Grenoble, the first forty years of his life were passed in his native country. During that time, however, he visited Italy, Spain, Switzerland, and Germany. His intelligent mind was open to the impressions which such voyagings may give. It accepted what was sympathetic; it rejected what was antipathetic. His intellect was enriched and broadened, not narrowed, as not infrequently happens, into provincial conceit of the unapproached excellence of one's

own country. He served in the war of 1870. He came forth from that struggle an ardent republican; perhaps he was such before. He also came forth from it with an abhorrence of war. No doubt his nature was always of a pacific disposition. And what is the most admirable fact, in this connection, is that, while keenly feeling the cruel effects of the invasion on his country, he justly awarded the blame for that war to the places where it belonged both in France and in Prussia. To the German people, neither collectively nor as individuals, did his resentment go out. His warmest feelings were extended to many individual Germans, and he looked upon a Franco-German alliance as a desirable result. And there was much of personal tragedy in the war for him and his kindred, for we learn, only after his death, that during these last thirty years he had been toiling to rehabilitate the destroyed family fortune, besides contributing to the support of three sisters. After the war, marrying, he set his face to the New World, arriving in California in May, 1876. I became acquainted with him in those early years of his residence in this vicinity, but it was only comparatively recently that I came into his closer friendship. A man strangely bashful, he never wholly overcame the defensive attitude that a bashful man naturally has in a foreign country. It was too bad that what I may call an official hand could never have been extended in sympathetic cordiality, for then his own life would have been happier and his usefulness would have been doubled. He was a cultivated scholar, of refined tastes and with an appreciative insight into Romanic literature. He was a zealous student, never tiring in his diligent research. He was singularly attached to the University, singularly interested in its prosperity, singularly solicitous for its right organization. His bashful nature and his depreciation of his command of the English language kept him aloof from the official discussion of University matters. His separation from what was of so great interest was always a matter of regret to him. It led, of course, to his being misunder-

stood, as well as to his own misunderstanding of events.

His mind being supremely French, was keenly critical; but never did criticism have less venom. For his nature was gentle, refined, beautiful; and was adverse to what was harsh and unjust in judgments. Knowing him as a type, one could but love and admire the French character. And I have known others, maybe coming in contact just here and there in their natures, for the French while most cordially taking you into the vestibules, do not, without knowledge of you, let you approach the sacred hearth-fires of their hearts; and in these touches of acquaintance I have recognized the sweetness and beauty of that Gallic spirit that I learned to know largely in the being of Professor Paget.

Personal afflictions through death have come to members of the University, which are also sorrows to the community. Of such I may not speak from this platform; but of Madame Paget, whose death followed that of her husband in two weeks' time, I may appropriately say a few words. While her life was perhaps no more a self-sacrificing devotion to her husband than many another woman's to her family, yet the manner of it was exceptional. She took upon herself the business of the household, the whole financial management, leaving to Professor Paget his entire time for literary pursuits. She was a woman of extraordinary activity, and occupations outside her home were numerous and varied. She was always thoughtful of others; she was forever engaged in personal charities and acts of helpfulness. But what concerns us particularly is her absorbing interest in the University. It was her constant thought, and while, as I have said, she removed all business cares from her husband's shoulders, they discussed together all her plans and projects. One important project for the University she was in some measure able to achieve; and one day, when a hospital for students is realized, it is well to remember that the inception of the idea and the nucleus of the fund therefor came from Madame Paget.

For there is a substantial nest-egg for that purpose in the care of the Regents, largely formed through her efforts. And again, after Professor Paget's death, Madame Paget made an eventual provision for a scholarship for students of French. That is to say, after providing for the necessities of dependent relatives and for preserving the family honor, this couple, recognizing the kindnesses offered them in this foreign land, requited them to the full extent of their ability. They owed, in fact, nothing either materially or spiritually; for on both sides they had been more than punctual in all obligations. It is unnecessary to say that this State had in fact received a full compensation for whatever salary had been paid to Professor Paget. But they did not regard it in that light, but wished to leave a memorial of their gratitude and love.

Once more, it is the moral basis from which we get the highest contribution in our professors and instructors. A scholar Professor Paget surely was, and worthy occupant of the chair of Romanic Languages and Literatures. For the service of scholarship rendered by him, we may say that he received a pecuniary compensation. But the precious thing, above rubies in value, was intercourse with this elevated, sweet and serene character.

Let us now for a moment place together in one picture these three noble characters:—LeConte, Kellogg, Paget. They were types widely separated in many ways. Professor LeConte was a man of Southern birth, breeding and instinct. His life work lay in the field of natural science. Professor Kellogg was thoroughly a New Englander in his extraction. His first years spent in the ministry of the Gospel, his life and interest were centered in the language and literature of the Romans. Professor Paget was French—French in birth and ancestry, French in feeling and interests. In many respects, therefore, they were widely separated. We may well be thankful that men of such diverse points of view are brought together in this educational focus. It is not the contrasts, however, that I wish to bring out. And it

seems to me that they possessed certain very important qualities in common: qualities in the last analysis the most important. First, then, they were all three gentlemen. This is their first ground of meeting lying outside the territorial lines of nationality. This matter of manners was no mere surface polish, it had a deep moral foundation. With Professor Kellogg's reticence and Professor Paget's shyness, the urbanity of the one and the courtly manner of the other must have arisen from a native gentleness of character. In the case of Professor LeConte the manifestation was somewhat different; for he was not reticent, and the only timidity he had was the usual timidity of the scholar, the non-obtrusiveness of the man of letters or of science in a self-assertive world. His abounding cordiality always, therefore, found free play; but how delicate, refined, and gentle it was. How careful each of these three never to wound the feelings of his fellow-man!

Next, the point of resemblance between the three was in the simplicity and sincerity of their character. This simplicity was, perhaps, most manifest in Professor LeConte, because it was so obviously present in every action and his whole attitude, in his free and unrestrained manners. Intellectually, the others were not so simple and unconscious as he. But in all essential acts of life, in home-life, so far as I was privileged to know them, in social relations, in habits and tastes, simplicity was the characteristic of their conduct.

Where simplicity is, sincerity cannot be far off. For the dominant quality of these men was in character, in a moral structure wrought into the elements of their nature. A moment's reflection for all who knew him at that time will of course disclose the perfect simplicity and sincerity that marked the nine years of President Kellogg's administration of the University. It was not Professor Kellogg's disposition to tell other people that they were not sincere, or to criticize another in any way. He pursued his own course with uprightness and steadfastness; he did not take upon

himself to censure others. Professor LeConte's nature was so ingenuous that he seemed never to see guile in any other person. Pretense would have shocked him, if he had become really conscious that men were pretentious and pretenders. Professor Paget's mind was more analytical. He saw the shams, and detesting, was bold to denounce. His own order of life was so simple and sincere, that it grieved and outraged his indignant soul that any should be striving for unworthy ends or using unworthy means.

I would say to you, heed then the call of the time, and pay respect to these followers of the Gospel of Simplicity and Sincerity.

St. Augustine says, in the *Civitas Dei:* "Wherefore we must by no means seek, through the supposed mediation of demons, to avail ourselves of the benevolence or beneficence of the gods, or rather of the good angels, but through resembling them in the possession of a good will, through which we are with them, and live with them, and worship with them the same God, although we cannot see them with the eyes of our flesh. But it is not in locality we are distant from them, but in merit of life, caused by our miserable unlikeness to them in will, and by the weakness of our character; for the mere fact of our dwelling on earth under the conditions of life in the flesh does not prevent our fellowship with them. It is only prevented when we, in the impurity of our hearts, mind earthly things. But in this present time, while we are being healed that we may eventually be as they are, we are brought near to them by faith, if by their assistance we believe that He who is their blessedness is also ours."

UNIVERSITY RECORD.

NATHAN M. MORAN.

IN MEMORIAM.

FÉLICIEN VICTOR PAGET,
EMMANUEL MARIE PAGET.

Bound together by the affections and associations of a third of a century, death could not long part the souls of Félicien Victor and Emmanuel Marie Paget. Their going has left, not one, but two vacant places in our circle; but in mourning her double loss the University does not grudge them the boon of having passed together into the Great Beyond. Of an ancient and honorable family of Franche-Comté, Félicien Paget was born on June 27, 1833, at Petit-Villard, France. He received in 1862 the degree of Bachelier ès Lettres from the University of Strasbourg, and three years later the degree of Bachelier ès Sciences from the University of Grenoble. His college education was devoted particularly to the classics and to history, and was supplemented by much vacation travel through Europe. In the Franco-Prussian war he served as an officer in the Francs-Tireurs, and it was during these troublous years that he was married at Paris in 1870 to Emmanuel Marie Jacquet. From the restless times which followed the war in France they came together to the New World to seek peace and opportunity. A course of lectures which Professor Paget delivered in San Francisco gained him the recogni-

tion of the University, and in 1887 he was called to Berkeley as instructor in French and Spanish. In the years which followed he was promoted through the various grades to the Professorship of French and Spanish Languages in 1894. In 1898 his sphere of teaching was extended to include the literatures of these peoples as well as their languages. In 1900 the whole department was reorganized and broadened and he was placed at its head as Professor of the Romanic Languages and Literatures. A year ago Professor Paget was forced by failing health to retire from active instruction, but the University honored him in his retirement with the title of Professor Emeritus of the Romanic Languages and Literatures. In the work of his department his especial interests were the writings of his great countryman, Victor Hugo, and the philology of Old French. To hear these lectures, and others delivered in French, on the movements and periods in French literature many generations of students have entered his class-rooms to listen with pleasure and with appreciation.

In collaboration with Professor Edward T. Owen, now of the University of Wisconsin, formerly Professor of French here, Professor Paget published annotated editions of the "Travailleurs de la Mer," by Victor Hugo; "Ursule Mirouet," by H. de Balzac; and of "Cinq-Mars," by Alfred de Vigny. On December 23, 1903, he passed to his rest. The campus will see no more, but those who have known him will not forget the dignity of his courtly figure and manners; nor can younger generations of students know, as have the older, the great- and kind-heartedness of this fine representative of the old noblesse of French spirit.

Not less than did her husband Madame Paget loved and labored for the University; next to him there was nothing which had a higher place in her heart. Even in sorrow her devotion was not lessened, for in the few remaining days of her life she bestowed upon the University the library which her husband had loved and labored in, and at her death she provided for a scholarship in memory of him.

Providentially it was not given her to mourn him long, and on January 4, 1904, she followed him to the last rest; but in student social gatherings and in the society of the University community she leaves a place which will long wait to be filled by a presence possessing the grace and charm that were hers.

THE FIRST BARBARA WEINSTOCK LECTURE ON THE MORALS OF TRADE.

The first Barbara Weinstock Lecture on the Morals of Trade was delivered at Hearst Hall on the evening of February 4th by Dr. Albert Shaw, editor of the *American Monthly Review of Reviews*, of New York. The subject of his address, the text of which appears in another part of the CHRONICLE, was "Public Duties and Relations of Modern Business Life."

Dr. Albert Shaw, who was selected to begin this series of lectures, began while still a graduate student at Iowa College to devote a part of his attention to journalism. Ever since that time he has continued to engage in journalistic work, while still keeping in close touch with the work of universities. In 1884 he received the degree of Ph.D. from Johns Hopkins university for work in history and political science, contributing meanwhile, and for several years afterwards, to the editorial columns of the *Minneapolis Tribune*. This was broken by a year's absence at European universities and was resumed upon his return to this country, but not to the exclusion of his membership in many learned societies and a participation in the great public functions of American universities. Twelve years ago he began the publication of the *American Monthly Review of Reviews*, and through its columns has performed great services to American citizenship. In the department of the magazine denoted as the Progress of the World he gives his personal exposition of passing events with well-proved wisdom and fairness and with a notable insight into the affairs of the world.

Dr. Shaw's writings, aside from this constant work of editorial reviews, have been in the form of magazine articles and books on political science and economics; but in particular he has studied and written on the problems of municipal government now confronting the United States, based on an intimate acquaintance both with conditions here, in Great Britain, and on the Continent of Europe.

It is a particularly happy event that to deliver this first Barbara Weinstock Lecture,—in its foundation the first endowed lectureship in the University of California,—a man could be chosen who has contributed so much to raise American civic ideas, to quicken the public conscience, and to inform the public mind. During his brief stay Dr. Shaw was entertained by members of the University faculty and by men of San Francisco prominent in business and in municipal affairs.

UNIVERSITY EXTENSION.

Like the agricultural extension work, the new department of University Extension has now extended its activities widely through the State. Fourteen courses of twelve biweekly lectures each has been given throughout the winter in fourteen different California towns. Professor H. Morse Stephens, director of the department, himself has given nine courses, lecturing on "The French Revolution" in some towns and on "The History of Writing History" in others, his centers being Red Bluff, Marysville, Napa, Chico, Covina, Pasadena, Long Beach, Santa Barbara, and San Francisco. In San Francisco, where the course is under the auspices of the Mechanics Institute, the audiences have constantly exceeded a thousand. Mr. Garrick Mallory Borden, Staff Lecturer, has given a course on "Florence and the Renaissance—History, Art, and Literature," at Fresno, Visalia, Merced, and Modesto. Mr. Jerome B. Landfield is delivering a course at Sacramento, on "Russia." Travelling libraries and syllabuses are supplied and class work offered for those who wish thus to supplement the lectures. Two

hours of University credit will be granted to those who successfully complete this optional class work and pass the examinations set.

SUMMER SESSION.

As has been the case in past Summer Sessions the faculty for the session of 1904 will include many distinguished teachers from the leading colleges and universities of the country. In addition to these the Exposition at St. Louis and the learned congresses which are to be held there have made it convenient for a number of the best-known scientists and literary men of Europe to accept appointments. Among these are Sir William Ramsay of University College, London, who will give for the first time a course of lectures on Recent Developments in Chemical Theories, and which will be based partly on the behavior and properties of radium; Professor Svante A. Arrhenius of Stockholm, the well-known exponent of physical chemistry, who will make public the results of his recent investigations in serum therapy; Professor Hugo de Vries, the noted botanist of Amsterdam, who will deliver a course of lectures on the Mutation of Species in Plants; and Professor James Ward of Trinity College, Cambridge, who will offer courses in psychology. From Canada will come Dr. Reginald Aldworth Daly, Geologist to Canada for the International Boundary Commission, who will conduct courses in physical geography. The department of history will contain a notable group of men in Frederick Jackson Turner, Professor of American History in the University of Wisconsin, Archibald Cary Coolidge of Harvard, who will deliver a course of lectures upon the Eastern Question, and Professors Bernard Moses and H. Morse Stephens of the University faculty. Among the other well-known teachers who will come from American institutions are Francis Barton Gummere, Professor of English in Haverford College; Morris Hickey Morgan, Professor of Classical Philology in Harvard University; Albert Augustus Stanley, Professor of Music

in the University of Michigan; Frank Morton McMurry, Professor of the Theory and Practice of Teaching in Teachers College, Columbia University; Hammond Lamont, editor of the New York *Evening Post*, formerly Professor of Rhetoric in Brown University; Charles Hall Grandgent, Professor of Romance Languages in Harvard University; and Fonger de Haan, Professor of Spanish in Bryn Mawr College.

DEFALCATION OF SECRETARY W. A. McKOWEN.

Early in December irregularities were discovered in the accounts of the Secretary of the Board of Regents, W. A. McKowen. He thereupon confessed to having misappropriated University funds. He was placed under arrest on a charge of embezzlement. To this he pleaded guilty and was sentenced to six years and eleven months in San Quentin. The amount of shortage is slightly above $51,000. Mr. Victor H. Henderson, President's Secretary, has since served as Acting Secretary of the Board of Regents.

GIFTS AND BEQUESTS.

On January 21st the will of Charles F. Doe, whose death occurred in San Francisco during the preceding week, was offered for probate. By its provisions he left to the University twenty-four per cent. of his whole estate, to be devoted to the erection of a new library building. The estate consists largely of valuable real estate in San Francisco, and this proportion of it will have a value of $600,000, and possibly more. President Wheeler, in announcing the gift, said: "With this sum a building worthy of the University and of the State can be erected and large enough to meet the needs of the next twenty years. As time calls for enlargements they can be built. Everyone acquainted with the internal workings and needs of the University knows that no lack is so bitterly felt as that of a proper library building. No gift could have been as much appreciated by as many people. Henceforth the

name of Charles F. Doe is forever enrolled among the greatest benefactors of the State."

The late Charles Franklin Doe was a native of the State of Maine, having been born on the old family homestead in West Parsonfield, York County, August 23, 1833. He was the youngest of twelve children in a family which comes of the purest and sturdiest old New England stock. His father's ancestors came from England to Newmarket, New Hampshire, about the year 1650. On his mother's side his ancestry is traced back to the Non-conformists who emigrated from England to Holland and in 1632 followed the Pilgrim Fathers to New England.

On the homestead farm Mr. Doe was brought up as a tiller of the soil, but not finding this altogether congenial, he left home, taught school, and engaged in various other occupations throughout New England. In 1857 he came to San Francisco to join his elder brother Bartlett, who had in 1850 established himself as a dealer in windows and doors. They, with a third brother, John, carried on and built up this business, which became the foundation of their fortunes. The firm grew to be the California Door Company, of which Mr. Doe was President at the time of his death. He was a man of extremely modest and retiring disposition, but was admired for his sterling qualities by all who knew or dealt with him.

Mrs. William H. Crocker has donated $2500 in furtherance of the anthropological work now being carried on in Mexico under the direction of Mrs. Zelia Nuttall.

Colonel George W. Bauer has again donated $50 to the library of Mim Kaph Mim, the chemistry society.

Mr. Rudolph J. Taussig, Regent of the University and President of the Mechanics' Institute, San Francisco, has offered one hundred dollars as a prize to be awarded for the best historical essay submitted in a competition to be known as the "Bryce Historical Essay" competition. The prize is to be awarded on Charter Day, 1905, and the competition to be limited to membership of the Senior Class and graduates of one year's standing.

CHARTER DAY.

Charter Day, which marked the beginning of the forty-fourth year of the life of the University, and its thirty-sixth as a State institution, was observed in an appropriate manner. The exercises were held in the Harmon Gymnasium, the condition of the weather not permitting the use of the Greek Theater for the purpose. The addresses of the day, which are to be found printed elsewhere in this number of the CHRONICLE, were delivered by President James Burrill Angell, of the University of Michigan, and President Wheeler.

In the afternoon the Alumni held their annual Alumni Conference in the Philosophy Building. Over seventy-five alumni were present. At this meeting it was decided to hold the annual Charter Day conference in San Francisco hereafter, and also to discontinue the practice of holding an annual Commencement Luncheon.

MUSICAL AND DRAMATIC FUND.

A committee under the chairmanship of Professor Armes is endeavoring to establish a fund which may be used as a basis for bringing lecturers, musical recitals, and dramatic performances to the University. As a general rule these more than pay for themselves, but hitherto it has not been possible to guarantee any payment for the performances, and many opportunities for hearing really good entertainments have been lost. A successful concert by the Kilties Band was given in the Greek Theater on March 2d. It is hoped that in the course of time the fund will reach such proportions that the income may be used for the purpose of bringing musical and dramatic talent to the University.

LECTURES AND UNIVERSITY MEETINGS.

On January 14th the University had the pleasure of listening to an address in French by M. Emile Labarthe, on "L'esprit français et l'étranger." He is in this country on a commission from the French Republic to study

American social conditions, and has served his government previously on many foreign missions of this and other characters. The address was delivered under the auspices of the Alliance Française.

Through the kindness of Mr. James D. Phelan a University audience was the first to hear Mr. William Butler Yeats, the Irish poet and scholar, after his arrival on this coast. Upon the inspiration of his first view of the Greek Theatre Mr. Yeats spoke of that phase of the intellectual revival in Ireland, which is endeavoring to uplift the Irish stage and to restore the national drama.

At the first University Meeting of the second term the speakers were Dr. Edward R. Taylor, Dean of the Hastings College of the Law, and Regent F. W. Dohrmann. Dr. Taylor made an appeal to university men to oppose the growth of modern materialism. Regent Dohrmann gave to a most attentive audience what he considered the elements and principles of success in life.

At the second University Meeting the speakers were Mr. John McNaught, Managing Editor of the San Francisco *Call*, and Mr. William T. Reid, Jr., Assistant Head Master of the Belmont School. Mr. McNaught advocated a closer affiliation between the universities and journalism, the teaching of journalism in the universities, and the profession of journalism for college men. Mr. Reid made an appeal for clean college sport.

The time set for the third University Meeting, happening to fall on the anniversary of Professor LeConte's birthday, which has now been raised to the place of the University Memorial Day, the hour was given over to memorial exercises in commemoration of Professor LeConte and of the members of the University circle who have been called by death within the past year. After a devotional service conducted by the Rev. J. K. McLean, the principal address was delivered by Professor William Carey Jones, and on behalf of the students an address was made by Max Thelen, President of the Associated Students.

The fourth University Meeting of the term was held on April first. The speakers were the Hon. James D. Phelan of San Francisco, Rev. J. K. McLean, D.D., President of the Pacific Theological Seminary, and Dr. Eduard Meyer.

At the University Meeting of April 15th the speaker was Rev. Lyman Abbott, D.D., editor of the *Outlook* and for many years pastor of the Plymouth Congregational Church, Brooklyn. Dr. Abbott spoke of the splendid opportunities of the college man of the west to accomplish work for the moral welfare of the nation.

Dr. Eduard Meyer, Professor of Ancient History in the University of Berlin, and known throughout the world's historical circles as the greatest authority on topics of Ancient History, delivered two lectures at the University, on Wednesday and Thursday, March 30 and 31. Dr. Meyer came to the University of California directly from the Fiftieth Convocation and the exercises connected with the Recognition of the Indebtedness of American Universities to the Ideals of German Scholarship, purposely to deliver these lectures. His topics were "The Emergence of the Individual in Ancient Times, the Prophets of Israel, Zoroaster, Hesiod and their Compeers," and "Socrates."

On May 15th, 18th, and 20th Dr. Georg Steindorff, Professor of Egyptology in the University of Leipzig, and Lecturer for 1904 of the American Committee for Lectures on Religions, gave a series of three lectures on The Religion of Egypt. Dr. Steindorff crossed the continent to deliver these lectures. His topics were: "The Development of Egyptian Religion," "The Views of the Ancient Egyptians concerning Life after Death," and Graves and Burials in Egypt: Religion Outside Egypt."

Alford W. Cooley, of the United States Civil Srrvice Commission, addressed the members of the University on the afternoon of April 15th, on "Civil Service Reform." After his address steps were taken toward the formation of a University of California Civil Service Reform Associa-

tion. Both students and members of the faculty will be eligible to membership in this association.

During the last week of February Director W. W. Campbell of the Lick Observatory delivered at the University the first two Lick Astronomical lectures for the year. The first of these was on "The Motion of the Solar System Through Space;" the second gave the results of Professor Campbell's investigations into some of the remarkable temporary stars of late years. It was largely for the distinction which he attained in this line of stellar investigation that to Dr. Campbell was recently awarded the Lalande Prize of the Academy of Seiences.

Hon. Horace Davis, President of the University from 1888 to 1890, and now President of the Sperry Flour Company, of San Francisco, addressed the students of the College of Agriculture under the auspices of the student Agricultural Club, March 25th, on "California Wheat from the Miller's Standpoint." On April 2d Judge Peter Snell of Sacramento delivered an address under the same auspices on "Agricultural Education."

AGRICULTURAL NOTES.

Elwood Mead, Professor of Irrigation, has returned to the University from a personal inspection of irrigation systems in Europe. His lectures for the present term deal mainly with irrigation problems and systems in foreign lands and their applicability to irrigation needs in the United States, particularly in California. Professor Mead's recent investigations in Southern Europe are largely the basis of his lectures.

Professor Arnold V. Stubenrauch has also recently returned to Berkeley, from a month's stay in Washington. During this time he aided in obtaining for the Pacific Coast two important Government Experiment Stations, one at Mecca on the edge of the Colorado Desert, which will be devoted to the study of palm culture, and the other in the Sacramento Valley near Chico, intended for the study of seed and plant introduction.

Professor C. W. Woodworth has for three months past been carrying on an interesting economic experiment in the culture of bees and the production of honey. He has had constructed what is in effect a beehive made entirely of glass. Through this all the honey-making operations of the bees are being carefully watched, and in addition the materials used by the bees and the honey produced are being carefully weighed. An important feature of the experiment is the substitution of artificially prepared food in the place of the usual plant products from which the honey is made. The object of the test is to ascertain the minimum cost of production and at the same time to secure as good if not a superior quality of honey. The experiment promises to be highly successful.

Since the issuance of the last number of the CHRONICLE the Agricultural Department has published two twenty-page bulletins, one containing directions for spraying the codling moth, by Professor C. W. Woodworth, and a second, a report on the asparagus rust investigations, by Professor Ralph E. Smith. In addition to these there are ready for publication circulars on reading courses, and a bulletin upon fowl cholera.

TRAVELS OF FACULTY MEMBERS.

Professor W. A. Setchell, who has been spending the past eight months in Europe observing the work and equipment of the botanical departments of various universities and the methods of investigation of well-known botanists, is now in New Zealand, where he plans to spend several weeks in studying the algae of the famous New Zealand hot springs.

President Wheeler was away from the University for four weeks during the months of February and March, on a brief trip in the East, much of which was occupied in visiting men and universities with the object of working out the reorganization of the Department of Romanic Languages and the development of the College of Commerce,

the latter of which is made possible by the availability of the income from the Flood endowment. While in the East President Wheeler, in company with Professor C. M. Bakewell, represented the University of California at the annual meeting of the Association of American Universities, at New Haven. On Saturday, March 12, President Wheeler attended and addressed the exercises commemorating the 15th anniversary of the founding of the Thacher School, at Nordhoff, his subject being "The American Boy."

Professor Edmund O'Neill returned from his trip around the world in time to resume his duties in the Chemistry Department with the opening of the present term. Professor O'Neill's tour was made with the object of studying the methods of obtaining oil in the world's large oil-producing centers.

Recorder James Sutton was absent from the University during the month of February on a tour of the Eastern States, undertaken for the purpose of studying methods of keeping records in use in all the larger Eastern Universities, particularly with a view to the plans for the arrangement of the Recorder's offices in the new California Hall.

Professor Wm. E. Ritter and Mr. Loye Miller of the Department of Zoölogy have returned from San Diego, where they have for four weeks been studying marine animal and plant life. This work was done for the United States Bureau of Fisheries, and was the commencement upon the general plan for a detailed survey of the waters of the Pacific, which will take several years to accomplish.

STUDENTS' OBSERVATORY ENLARGED.

The Students' Observatory has been enlarged and its usefulness made much greater by the addition of several new domes for the accommodation of astronomical instruments. The new quarters were formally opened on Saturday evening, January 30th, with appropriate exercises. President Wheeler, Professor W. W. Campbell, Dr. R. T.

Crawford, Dr. B. L. Newkirk, Dr. A. F. and Professor A. O. Leuschner made addresses. The members of the Astronomical Society of the Pacific were invited guests.

ADDITIONS TO THE FACULTY.

Miss Jessica Peixotto assumed her duties as Lecturer in in Sociology with the beginning of the year. Miss Peixotto received her Doctor's degree from Columbia last May, for work in Socialogy.

Dr. Thomas Walker Page, who has been for a year and a half Professor of History in the University of Texas, has returned to the University of California as Associate Professor of Mediaeval History.

Dr. Richard Henebry has been appointed to the recently created position of Instructor in Celtic Philology. Dr. Henebry will give his first instruction at the University during the coming Summer Session.

Dr. Henry Rand Hatfield has been appointed Associate Professor of Accounting. Professor Hatfield comes to the University from the University of Chicago, where he has been for six years Professor of Political Economy. For the last three years Professor Hatfield has been Dean of the College of Commerce at that university.

THE RHODES SCHOLARSHIP EXAMINATION.

According to instructions sent from Oxford, the examination for the Rhodes Scholarship were held on April 13th and 14th. There were six examinations in all, on the following subjects: Arithmetic, Algebra or Geometry, Greek or Latin Grammar, Translation from English into Latin prose, and Latin Authors. From among those who have passed these examinations the holder of the Oxford scholarship will be selected by President Wheeler.

HALF HOUR OF MUSIC.

During the present term the various student musical organizations of the University have given in the Greek Theatre, one of them each Sunday afternoon, a "Half Hour

of Music." The program of each of these brief concerts has comprised music both suitable to a university audience and appropriate to the day upon which it is rendered. The University Orchestra, the Glee Club, and the Student Military Band have each contributed one or more of the half hours of music. That these concerts are appreciated by the members and friends of the University is attested by the large audiences that have attended all of them. At the last given by the University Glee Club there was present an audience of over 4000.

UNIVERSITY EXHIBIT AT ST. LOUIS.

The University is making extensive preparations for an exhibit at the International Exposition in St. Louis. The central feature of the exhibit will be a large relief map of the University site, showing its natural features and buildings as they will appear when the Hearst architectural plans are carried to completion. This will be supplemented by a great number of enlarged photographs and transparencies showing views of the grounds. Another important feature will be a graph illustrative of the University's history, progress, and work. Several departments are planning to make special exhibits, including the Lick Observatory, the Mining Department, and the Department of Agriculture. A number of publications will be on distribution, among them a History of the University, and another a sketch of its present condition.

STUDENT LABOR DAY.

On Monday, February 29th, the students of the University celebrated the anniversary of the student labor eight years ago. The celebration took the form of one day of work, for which 1400 men appeared on the campus and graded and built a half mile of much needed walks on the University grounds. The young ladies of the University prepared lunch for the laborers in the out-door basket-ball court of Hearst Hall. The day closed with a celebration in the Greek Theatre, lighted by a bonfire and fire works.

UNIVERSITY BULLETINS.

Since the publication of the last number of the CHRONICLE there have been issued by the University twenty-six bulletins, in addition to those edited by the Department of Agriculture. The list includes four bulletins of the Department of Geology, two by Professor John C. Merriam and two by Professor Andrew C. Lawson; one of the Department of Education, by David Rhys Jones; two of the Department of Zoölogy, one by Marian E. Hubbard and the other by Professor Wm. E. Ritter and B. M. Davis; one on Graeco-Roman Archaeology entitled "The Hearst Medical Papyrus," by Dr. G. A. Reisner and A. M, Lythgoe; twelve of the Department of Physiology, by Dr. Jacques Loeb, Dr. Martin Fischer, and Dr. J. B. MacCallum; three of the Department of Pathology, by Dr. Alonzo E. Taylor; and three by the Department of American Archaeology and Ethnology, two by Dr. Pliny E. Goddard, one by William J. Sinclair. These are in addition to the handsome volume "The Life of the Ancient Mexicans," mentioned in another article.

THE BOOK OF THE LIFE OF THE ANCIENT MEXICANS.

Beside publishing the researches of its own staff, it has fallen to the lot of the University to bring to light the work of a student, unknown and dead for three centuries. Mrs. Zelia Nuttall, while searching the libraries of Europe in 1890, had laid before her by the librarian of the Biblioteca Nazionale Centrale, Florence, Italy, a Spanish Mexican MS. entitled, "The Book of the Life of the Ancient Mexicans". A recognized authority in this field, she knew at once the value of her find. She sought and obtained permission to publish it from the Italian Government, which she has done in two handsome leather-covered volumes with beautifully illuminated texts.

The manuscript consists of pictographs made by a native Mexican, accompanied by comments in Spanish by

some non-clerical hand. First are found a number of designs used on the ceremonial mantles. These are followed by the signs for the days of the month, and the years of the cycle; representations of festivals; portraits of the gods; and scenes from ceremonial and everyday life.

Mrs. Nuttall has written an introduction in which she sets forth the relation of the codex to others of the same character and discusses the evidence furnished by its contents. This introduction, together with the fine facsimile of the text, constitute the first volume. Part II, now in press, consists of a commentary on the figures of the text. The publication of this work is made possible by the generosity of Mrs. William H. Crocker and Mrs. Whitelaw Reid, who have furnished funds for the work which Mrs. Nuttall is doing for the Department of Anthropology in Mexico.

FIELD WORK IN ARCHAEOLOGY.

The field work in Archaeology has been continued in Egypt by Dr. George A. Reisner, a concession to excavate about the pyramids having been divided by the Egyptian government on equal terms between the Hearst Expedition and the Italian and German governments. Mr. Goddard has continued his field researches among the Athabascan Indians of Northern California and Oregon; Professor Merriam and his assistants have continued the exploration of the limestone caves in the Shasta region; Mrs. Zelia Nuttall has been in Mexico, engaged in historical studies in connection with the Upsala map, means for this investigation having been provided by Mrs. Whitelaw Reid and Mrs. William H. Crocker; Dr. Max Uhle has been working over his Peruvian collections and preparing his report; Dr. Kroeber has been engaged in the transcription, collation, and ordering of mythological and linguistic material, and Dr. Washington Matthews has continued the preparation for publication of his Navajo material, representing many years of field work.

PUBLICATIONS BY MEMBERS OF THE FACULTY.

"A History of the Greenbacks," a volume of six hundred pages, has recently been published by Associate Professor Wesley Clair Mitchell of the department of Economics, as part of the Decennial Publications of the University of Chicago. Professor Mitchell discusses the economic consequences of the American issue of greenbacks—a subject of much interest from both the historical and economic points of view, as the paper standard period from 1862 to 1878 furnishes unequalled opportunity to study the effects of changes in the purchasing power of money, and as at the time of the Civil War the greenback issues appear as the central feature of the Government's financial policy, and after the close of the war as the cause of a new political party and the subject of prolonged controversities.

The far-reaching irrigation investigations of the United States Government, conducted under the direction of Professor Elwood Mead, head of the Department of Irrigation of the University of California, show their latest fruits in two volumes recently published under Professor Mead's editorship. Professor Mead's annual report as Chief of Irrigation Investigations of the United States Department of Agriculture records the results of investigations carried on in many different parts of the United States by the department experts, including studies of the duty of water, its distribution and use, the building of reservoirs, means for preventing seepage in the course of streams, irrigation in the humid regions of the East, measurements of silt carried in the streams of the Southwest, methods of pumping water, and the dangers of excessive irrigation. Another publication is a volume of studies of the cost, of methods of construction, and of the durability of structures in use on irrigation canals in various parts of the United States, with an interesting demonstration of the genuine economy of building irrigation structures of permanent materials, rather than, as is at present so largely the custom, of wood.